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Bid Activity Signals Approach of Hopper Spray Activities

Warning Signals Raised in California And New Mexico

DENVER—Start of spray operations for grasshopper control in the West moved closer last week as applications for bids were mailed in some states and bids were opened in others.

Meanwhile, grasshopper warning flags were posted in California and New Mexico. An area leader for federal grasshopper control said that California soon will be fighting what may be the worst plague of the insects in 15 years.

New Mexico ranchers, hard hit by drouth and other economic reversals, appealed, with little success, to the state for help in financing the landowners' share of control work.

Colorado has mailed applications for bids to about 300 potential bidders for the 120,000 acres of infested land to be sprayed for hoppers. The bids will be opened May 28 and spraying will begin shortly after June 1.

There is a possibility another 60,000 acres may be sprayed. At this time dry conditions have held back the hatch so it is not possible to tell whether it will be necessary to spray.

In Texas bids were opened on contracts to spray about 505,000 acres—work to begin about May 28. The one third normally furnished by the state was financed by the ranchers themselves on some of this land as state funds were lacking.

Ellis County, Oklahoma was to start spraying operations May 21.

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Ample Supply, Good Season Is Seen in 1956 Pesticide Report

Table 1—Pesticide Disappearance, Requirements[1]

	Domestic disappearance at producers' level			Requirements for domestic consumption in 1955-56	
	1952-53	1953-54	1954-55	Minimum	Maximum
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Benzene hexachloride 2/	7,300 7/	8,500 7/	7,800	7,000	9,000
Calcium arsenate	7,000	3,190	3,823	8,000	12,000
Copper sulfate 3/	79,605	80,257	77,988	40,000	55,000
2,4-D (acid) 4/	26,634 7/	27,251 7/	29,000	25,000	28,000
DDT	62,500 7/	45,117	61,800	50,000	60,000
Lead arsenate	16,000	16,000	12,895	14,000	18,000
Parathion 4/	3,000	3,975	n.a.	3,500	5,000
Pyrethrum 5/	8,113	7,610	7,671	7,500	8,500
Rotenone 6/	4,468	6,428	5,954	6,000	7,000
2,4,5-T (acid) 4/	4,645 7/	2,906	2,500	2,500	3,500
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined)	34,050	35,420	57,000	35,000	50,000

1/ Based on available information; crop year is from October 1 to the following September 30.
2/ Gamma isomer basis; includes lindane.
3/ Disappearance for all domestic uses including industrial; requirements for agriculture only but include plant nutrient as well as fungicide use.
4/ Export data not being reported separately, figures represent total disappearance at producers' level.
5/ Revised imports; includes advanced in value (powdered), also equivalent of pyrethrum extract imported from Africa beginning in 1953-54.
6/ Imports; includes cube and derris, both whole root and powdered.
7/ Revised figure.

WASHINGTON—Supplies of insecticides, fungicides and weed killers for the needs of domestic agriculture, generally will be ample in 1956, as in the past year or two, according to "the Pesticide Situation for 1955-56," issued recently by the U.S. Department of Agriculture.

"The pesticide industry reports that its business was better in 1955 than in any year since 1951," the publication states.

"Conditions over extensive areas favored the development of heavy infestations of the boll weevil on cotton, and rains made necessary many applications of cotton insecticides. In the Midwest, populations of grasshoppers and the European corn borer were serious.

"Extensive forested areas in the western U.S. were aerially sprayed in 1955 to control insect pests of timber, primarily spruce budworm."

The report, prepared by Harold H. Shepard, Commodity Stabilization Service, Food and Materials Requirements Division of USDA, presents figures on disappearance and requirements of a number of pesticides over the past three years; U.S. production of major materials; manufacturers' stocks of pesticides on hand September 30, 1955 as compared to that date in 1954 and 1953; and specific data on a number of individual materials.

The disappearance of major pesticidal chemicals at the producer level for each of the past three crop years, and revised estimates of domestic requirements for 1955-56, are shown in table 1. These figures were obtained, the report states, by applying to the

(Continued on page 17)

Production Capacity for Phosphoric Acid Totals 1.7 Million Tons P_2O_5; Increase to Over 2 Million Tons Expected by 1957

WASHINGTON—The combined capacity for production of phosphoric acid, both from phosphorus and by wet-process, totaled 1,764,737 tons P_2O_5, equivalent to 4,874,954 tons 50% H_3PO_4 on last Jan. 1, according to the current issue of Chemical and Rubber, monthly publication of the Business and Defense Services Administration, U.S. Department of Commerce.

The reported scheduled expansions for both types of acid are expected to raise capacity to more than 2,000,000 tons P_2O_5 by the middle of 1957.

Annual capacity for the production of phosphoric acid from phosphorus as of last Jan. 1 was reported to be 771,524 tons P_2O_5, equivalent to 2,131,280 tons 50% H_3PO_4.

This capacity theoretically would require a quantity of 336,800 tons of phosphorus, a quantity about 5% higher than the phosphorus capacity of 320,000 tons on that same date.

That phosphorus capacity, in turn, was nearly double that in existence on Jan. 1, 1951, and exceeded by 45,000 tons the expansion goal set by Office of Defense Mobilization for completion in 1955.

Additional expansions completed during 1955, plus those currently under construction or authorized, will bring total capacity to 383,000 tons by July 1, 1957, according to the report.

The Jan. 1 capacity for wet-process phosphoric acid was reported at 993,210 tons P_2O_5, which in terms of 50% H_3PO_4 would amount to 2,743,674 tons. This capacity represents an increase of 114% over that in existence Sept. 1, 1951.

The report notes that there are eight companies in the U.S. with a

(Continued on page 21)

American Cyanamid To Triple Output of Amino Triazole

NEW YORK—American Cyanamid Co. announced May 18 that it is constructing extensive facilities expected to triple present production of amino triazole by 1957.

Company officials said the favorable data, as a result of research on the product's usefulness to agriculture, led to the decision to expand present manufacturing facilities.

Contract Let

KANSAS CITY—A contract for construction of Spencer Chemical Co.'s new research center in Johnson County has been let, and construction is to begin immediately. Completion is scheduled by the summer of 1957. The 2-story building will have 36,000 square feet.

Average Yield of Lint Cotton in 1955 Totals 417 Lb. an Acre for New Record

WASHINGTON — The average yield of lint cotton in 1955 was 417 lb. an acre to set a new record for the third consecutive year, according to the Crop Reporting Board.

The 1955 average yield was 76 lb. above the previous record outturn in 1954 and 138 lb. above average.

The Crop Reporting Board said that the high 1955 yields are attributed to several factors, including generally favorable moisture conditions, more fertilizer, use of best land, improved cultural practices and unusually good cotton harvesting weather.

The cotton acreage harvested in 1955 is estimated at 16,928,000 acres, the smallest since 1884, and compares with 19,251,000 acres harvested in 1954. Cotton production in 1955 is estimated at 14,721,000 bales compared with 13,696,000 bales in 1954 and the 1944-53 average of 12,952,000 bales.

Plans Made by U.S. To Protect CCC Corn in Storage

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON — Commodity Credit Corp. has taken first steps in a large scale operation to study the effectiveness of stored grain protectants. About ten million bushels of corn obtained from loan default deliveries from the 1955 crop will be used in the project.

The pesticidal material, according to USDA information, comprises a concentrate containing 33% technical piperonyl butoxide, 3.3% pyrethrins, 43.7% petroleum oil, and 20% inert ingredients. It will be mixed with water. USDA has announced the purchase of 3,600 gallons of the concentrate from Thompson-Hayward Chemical Co., Kansas City, Mo. The low bidder's price was reported by USDA to be $24.46 gal., delivered to points in Kansas, Illinois, Nebraska, Indiana, Iowa, Ohio, Missouri, South Dakota and Minnesota.

CCC officials informed Croplife that

(Continued on page 21)

L. S. Hitchner Outlines Industry's Role in Safe Food Output

NEW YORK—More and more the public is demanding a clean, safe and healthy food supply, L. S. Hitchner, executive secretary of the National Agricultural Chemicals Assn., declared here recently in a speech at the 60th annual conference of the Association of Food and Drug Officials of the United States.

Stating that the growing interest of the public in safe foods is a healthy development, Mr. Hitchner said, "Insofar as pesticides are concerned, the public is assured of their safety if directions for use are followed."

The Miller Amendment to the Food, Drug and Cosmetic Act, which the agricultural chemicals industry supported, requires manufacturers to thoroughly pre-test a chemical before it can be offered for sale, Mr. Hitchner said. Manufacturers are putting anywhere from $50,000 to $750,000 per product into research to establish a safe level of use.

Mr. Hitchner also stated that the majority of food crops regarded as necessary to the modern American diet, such as citrus fruits, and other fruits and vegetables, cannot be grown in the necessary mass quantities without agricultural chemicals.

He concluded by congratulating the Association of Food and Drug Officials on its 60th anniversary and pledged the continuing interest of the agricultural chemicals industry in cooperating with Food and Drug officials in the protection of public health.

MINOR ELEMENT RESPONSE

CLEMSON, S.C.—The application of boron and manganese increased the yield of lint cotton as much as 24 to 54 lb. an acre in tests at the South Carolina Experiment Station at Clemson. Research there also showed that alfalfa responds favorably to proper application of boron.

Monsanto Expands Program of Financial Aid to Education

ST. LOUIS — An expanded program for Monsanto Chemical Co.'s financial aid to scientific education during the 1956-57 school year was announced recently by Dr. Carroll A. Hochwalt, vice president for research, development and engineering.

A total of 83 American colleges and universities will benefit from 111 separate direct aid awards under the program. This is an increase of 30 in the number of schools aided and 39 in the number of awards over the company's 1955-56 program.

The awards for the coming school year include 29 fellowships, 41 undergraduate scholarships and 41 cash grants. The fellowships are established for graduate study with the larger part of their $3,000 average value going to the individual. The scholarships are intended to cover tuition costs.

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Chemical Industry Sets New Safety Record in 1955

WASHINGTON—A new, all-time safety record was established by the chemical industry in 1955, the Manufacturing Chemists Assn. announced here recently.

Lost-time accidents in the industry, as recorded by MCA, amounted to 3.25 per million man-hours worked, the lowest accident frequency figure in the history of the industry and a slight improvement over the previous record of 3.27 established in 1954.

In releasing the new all-time low accident rate figures, S. M. MacCuish, luncheon of the Dow Chemical Co., chairman of MCA's General Safety Committee, pointed out: "The chemical industry accident rate is now almost one fourth of the 12.10 (per million man-hours worked) figure reported by the Bureau of Labor Statistics for all manufacturing during the first nine months of 1955. We continue to be one of the safest industries in the country."

The association announced also that to date it had awarded 331 certificates of safety achievement for 1955 to plants representing 32 companies. The awards are made annually to those plant locations which complete a calendar year without a lost-time accident.

Phillips Chemical To Erect Sulfur Plant in Texas

ANDREWS, TEXAS—A new sulfur plant with a capacity of 60 tons a day will be erected by the Phillips Chemical Co.

The new plant will be built adjacent to a natural gasoline plant already under construction. The location is about six miles southwest of Andrews.

The sulfur recovered at the plant will be converted into sulfuric acid which is used in Phillips fertilizers. From the new plant at Andrews, the sulfur will be shipped to the company's Adams Terminal Plant on the Houston Canal, where ammonium sulfate and superphosphate are manufactured.

J. R. Stein Named Division Project Manager for Dow

MIDLAND, MICH. — J. R. Stein, assistant general manager of the Dow Chemical Co.'s Texas Division, has been appointed project manager in active charge of constructing and developing the company's new Louisiana Division, Dr. Leland I. Doan, Dow president, has announced.

Mr. Stein will carry out his assignment under the direction of Dr. A. P. Beutel, vice president and director of the company and Texas Division general manager.

Dow personnel will take over key posts immediately with offices in the Baton Rouge area. The company shortly will select one of two sites for the new division. It has under option two locations of 1,700 and 1,100 acres on the west bank of the Mississippi River in the Baton Rouge-Plaquemine area.

The Louisiana Division will produce caustic soda, chlorine and several organic chemicals. It is expected to require an investment of at least $20 million and employ approximately 500 people within a few years.

RESEARCH FARM

LEXINGTON, KY. — The University of Kentucky has purchased a 202-acre farm for addition to the research facilities of the Agricultural Experiment Station. The farm is three miles south of the present station farm at Lexington.

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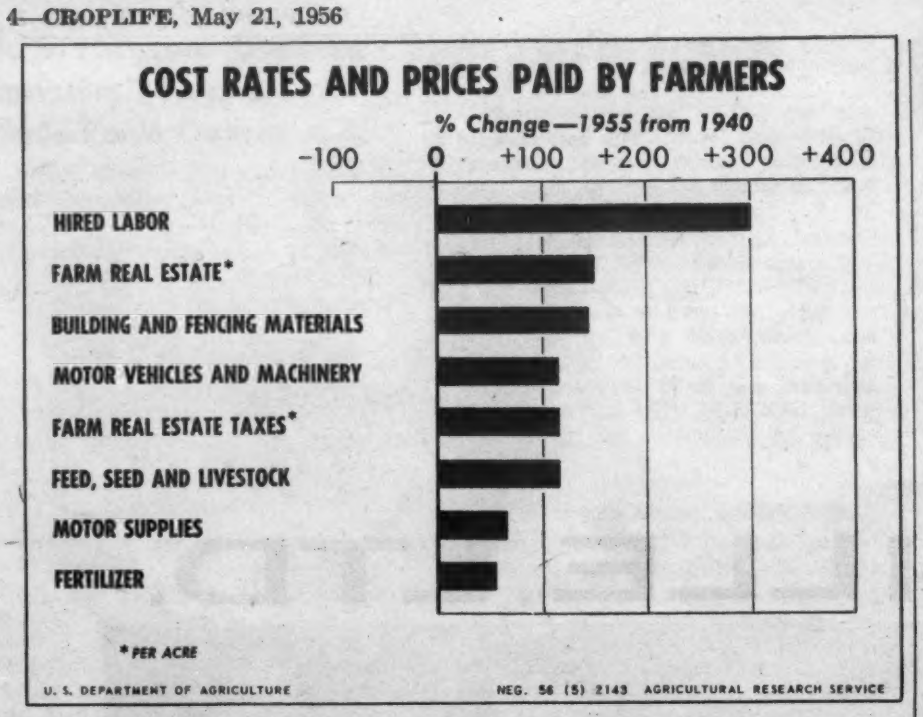

Fertilizer Continues as Best Buy, Farm Cost Report Shows

WASHINGTON—Fertilizer, long the "best buy" for farmers, is getting to be a better deal all the time.

The index of prices paid by farmers for fertilizer declined 2% in the year ended April 15, according to a report in the Farm Cost Situation, released by the U.S. Department of Agriculture May 16.

The fertilizer index is 3% below the 1953 peak, 5% above the 1947-49 level and only 48% above the 1935-39 level.

Of the things that the farmers have to purchase for today's efficient farming, it is on the bottom of the price scale.

USDA points out that while the fertilizer price index has climbed a scant 48% in the last 20 years, the price of land has increased 150% while cost rates in general and prices of farm products have more than doubled.

Prices of several important pesticides are slightly lower than they were last fall or a year ago, according to the report.

Manufacturers' prices of benzene hexachloride, DDT, calcium arsenate, 2,4-D and 2,4,5-T are all lower. An exception to this trend is the increase of about 60% in the price of copper sulfate, USDA said in the report.

Robert W. Harper Heads California Bureau Of Entomology

SACRAMENTO — W. C. Jacobsen, California director of agriculture, has appointed Robert W. Harper as chief of the Bureau of Entomology, California Department of Agriculture.

Mr. Harper, appointed assistant chief in August, 1953, has been acting chief of the bureau since the retirement of H. M. Armitage on Nov. 1, 1955. He was appointed as chief from a civil service eligible list.

A graduate of the University of California in entomology, Mr. Harper entered state service as a junior entomologist and plant quarantine inspector in 1939. The following year he joined the Los Angeles County agricultural commissioner's office as an agricultural inspector, and in 1941 he became assistant in charge of the Hall scale eradication project, a cooperative state-federal program centering around the Chico area.

In 1945 he rejoined the state department as a plant quarantine inspector assigned to the Port of San Francisco. In 1947 he was appointed survey entomologist assigned to Southern California with headquarters in Los Angeles. In 1949 he was appointed assistant state leader in charge of grasshopper control with headquarters in Sacramento. A native of San Diego, Mr. Harper is married and has two sons.

DOW DIVIDEND

MIDLAND, MICH. — The board of directors of the Dow Chemical Co. has declared a dividend of 30¢ per share on its common stock payable July 13, 1956, to stockholders of record at the close of business on June 22, 1956. This represents a 5¢ increase from the 25¢ paid each quarter since January 1953.

Riverdale Chemical Co. Moves to New Location

CHICAGO HTS., ILL.—Riverdale Chemical Co., formerly of Harvey, Ill., has announced the opening of its new plant and office at Chicago Heights, Ill., as of May 1.

This 16 year old midwest company has had a rapid growth since its start, in a small frame garage, around 1940. "Our first orders," reminisces Walton Smith, general sales manager, "were mixed in a barrel with a wood paddle and we delivered them in the rumble seat of an old jalopy."

In its new quarters, Riverdale will have some 50,000 square feet of operating space, allowing an increase of more than 50% in production—also allowing a much closer and more efficient office-plant relationship.

The firm's primary sales effort is concentrated in seventeen midwestern states and handled mostly through distributors and jobbers. Agricultural chemicals are manufactured exclusively in a complete line which includes chemicals for weed, insect, and brush control.

Riverdale has introduced its solvent-free DDT granules to the market this month, as a new product.

The firm's sales for 1956 are expected to top three million dollars, and during the peak season some 75 people will be employed by Riverdale.

Wheat Quotas

WASHINGTON—Ezra Taft Benson, secretary of agriculture, May 15 proclaimed a national marketing quota for the 1957 crop of wheat, subject to approval by growers voting in a referendum on July 20. He also established the national acreage allotment for the 1957 crop at 55 million acres, the level specified by the law under present conditions of excessive supply.

INSECT AND PLANT DISEASE NOTES

Alfalfa Pests Damage Maryland Crops

COLLEGE PARK, MD. — Alfalfa weevil damage to unsprayed alfalfa has been moderate to heavy on the Eastern Shore, in southern Maryland and as far west as southwest Washington county. Larval populations are increasing in all sections. On the Eastern Shore and in Montgomery county, larvae are beginning to make cocoons and will be changing to the pupal stage. Fields that have not been sprayed should be sprayed immediately.

Pea aphid numbers are quite variable on alfalfa in most sections. Injurious numbers were found on alfalfa in Prince Georges, Washington, and Worcester counties. The fungus disease which kills pea aphids has started on the Eastern Shore and should help to diminish populations generally.—T. L. Bissell and W. C. Harding, Jr.

Grasshoppers Threaten Large Range Areas

STATE COLLEGE, N.M. — Grasshopper eggs are beginning to hatch on range lands which have received moisture. As the weather warms up and more range receives showers, grasshoppers are expected to infest over 3 million acres of range and crop lands in New Mexico this year.

Spotted alfalfa aphid infestations are light to heavy and spotty in areas and within fields. There is no pattern to the activity. In the Los Lunas area, alfalfa planted last fall seems to be preferred. In the Albuquerque area, there seems to be no preference as to age of stand and infestations are spotty. Some growers are having trouble with small areas in their fields where nothing seems to kill the aphids. A heavy infestation was reported in the Mayhill area of Otero County. Generally, infestations are light to heavy and spotty in the southern two-thirds of New Mexico.

Two-spotted mite infestations are medium to heavy but spotty in alfalfa fields in Bernalillo, Valencia, Eddy and Dona Ana counties.

Lygus bugs are light in alfalfa fields throughout the state ranging 3 to 6 per 25 sweeps.

Pea aphid infestations are light to medium in alfalfa fields which have not been sprayed.

Grasshopper nymphs are becoming very abundant in home gardens in Albuquerque. Nymphs are also numerous in cultivated areas of Rio Arriba, Bernalillo, Valencia and Socorro counties. Grasshopper eggs on range lands are hatching in Lea County and are expected to start hatching in Lincoln and Chaves counties since large portion of the infested area received rain.—John J. Durkin.

Hay Insects Hatching, Illinois Report Says

URBANA, ILL.—Hatch of overwintering spittlebug eggs has continued in hay crop fields in the north two to three tiers of counties, and tiny yellow spittlebug nymphs are becoming quite numerous in some fields. They are now easier to find, as they are forming tiny droplets of froth.

Pea aphids, though found in most alfalfa fields in the state, are most abundant in the west and south. In some fields, damage is severe.

Occasional clover fields still have sufficient numbers of clover leaf weevils to cause moderate leaf feeding, but use of insecticides is not generally recommended for control under present conditions.

First pupation of European corn borer was observed in southern Illinois about the middle of May, which is approximately two weeks lat than they appeared last year. T area of Illinois north of Highway is most likely to suffer borer damag —H. B. Petty.

Missouri Reports Pea Aphids, Grasshoppers

COLUMBIA, MO.—Pea aphids co tinue to work alfalfa. Damage has i creased north of the Missouri Rive while in the southern part of th state, it is beginning to drop off som what. Parasites and predators a building up very rapidly, and in man instances, it will now be hard to d termine whether or not to spray.

A large portion of the early-plante corn is being hit seriously by cor flea beetles. The feeding damage look as though someone had taken a smal sharp instrument and cut off th green portion of the leaf, leaving onl the bare framework. Not only d these insects hurt the seedling plan but also are responsible for th spreading of Stewart's disease.

Grasshoppers have started. In the southern portion of the state, hopper hatch is well under way, and has started in the Northern counties. From now on, be on the watch for hatching beds, and get them sprayed out immediately.

Red clover is showing some dam age from clover weevils, but most o the weevils we have seen are about grown, fungus disease is getting start ed, and controls are not justified thi late. In addition, some fields are heavily infested with yellow clover aphids. These aphids are consider ably smaller than pea aphids, and work on clovers.—Stirling Kyd.

Iowa on Lookout for Corn Insect Pests

AMES, IOWA — By the middle o May, grasshoppers had not hatched but farmers were warned to be on the watch for them, particularly on sun ny, sheltered slopes.

Wireworms are working near the surface in Iowa, and seed or soil treatments were being recommended in areas of suspected infestation.

Weather favorable to the development of seed corn beetle and seed corn maggot brought warnings that these two pests are likely to attack and destroy a high percentage of stand in fields where seed corn or soil has not been treated.

Corn borer development is still lagging behind the numbers noted last season.

Plant Lice Attack Cotton in Texas

CORPUS CHRISTI, TEXAS — Young cotton in the Coastal Bend area is suffering heavy damage from lice, according to recent field inspections. In some fields there has been so much loss that replanting is necessary.

Because of muddy fields, many farmers are not able to apply insecticides, and the aerial applicators are running behind schedule in getting to all the farms.

Systemic materials have proved successful in delaying damage by thrips and lice. Fields thus treated have suffered little damage yet, but growers will use standard insecticides later to keep down infestations.

Kansas Alfalfa Fields Suffer Infestations

MANHATTAN, KAN.—The heaviest spotted alfalfa aphid infestations continue to be found only in the south central and southeastern areas of Kansas in the following counties: Harper, Sumner, Cowley, Chautauqua, Elk, Montgomery, Labette,

okee, Crawford, Neosho, Wilson, dson, Sedgwick, and Kingman. ulations of lady beetles have in- sed considerably in the southern ties with one report from Mont- ery County of 400 to 500 lady le larvae per square foot.

oderate to heavy infestations of aphids are present in alfalfa fields counties south of Douglas and nson counties of east central Kan- Counties with heavy infestations Miami, Linn, Bourbon, Franklin, erson, Johnson, Allen, and Dou- Many fields have wilted plants he result of the heavy aphid feed- activity. Lady beetles and larvae ough numerous are still not pre- in sufficient numbers to offer h control.

A survey of cropland areas in ney, Haskell, Meade, and Sew- Counties, southwest Kansas, wed that nymphal grasshopper estations were light and confined hatching beds on roadside, fence , weedy areas and stubble field retation.

he lesser migratory grasshoppers e the dominant species in such itats. Nymphal populations gen- ly averaged 15 to 35 per square . In these above mentioned habi- Ageneotettix deorum and Amphi- us coloradus are also present in erous numbers. Infestations vary n 3 to 5 per square yard for light s and 15 to 50 per square yard he highest concentrations.

n rangeland areas along the Cim- n River in Seward and Meade nties, nymphal populations gener- averaged 15 or more per square . Spotted concentrations in hatch- bed areas, such as the bottom of ey areas and places with a more ndant food supply, have nymphal ulations averaging 80 to 100 or e per square yard.—Dave Mat- w.

ireworms Active South Carolina

LEMSON, S.C.—Reports from mpton county indicate that 30% cotton seedlings there have been naged by wireworms.

urvival of boll weevil in cages is orted as high. A total of 229 live weevils were removed from 10 ernation cages in the week ending y 12, as compared to 136 active vils in the cages for the previous k. The numbers of live weevils oved from cages in corresponding ks of the past six years are as ows: 1956, 229; 1955, 19; 1954, 6; 3, 155; 1952, 60; 1951, 0; and 1950,

merican Chemical int Opens New Plant

MBLER, PA.—American Chemi- Paint Co. has announced the ning of a new office and factory St. Joseph, Mo.

he new facility will serve a terri- y lying between the Mississippi er and the Rockies and from ada to the Gulf of Mexico.

resent plans call for production agricultural chemicals and metal- rking chemicals. The agricultural micals will include weed and sh killers, plant hormones, defoli- , liquid fertilizers and insecti- es.

MORE CARROTS

TATE COLLEGE, N.M.—An in- ase of 441 bu. per acre of graded rots was obtained by the use of lb. of nitrogen and 67 lb. of sphate per acre on the Ralph d farm near Grants, N.M., in a nonstration conducted last year New Mexico A&M College.

SEEDSMEN TO MEET

ORTLAND, ORE. — More than Pacific Coast seed industry rep- entatives will gather at the Mult- nah Hotel here May 27-29 for the ual spring convention of the Pa- c Seedsmen's Assn.

Weather, Insects Threaten Cotton Crop in Mid-South

MEMPHIS—Cool, wet weather, weevils and other insects threaten the 1956 cotton crop.

This is the opinion of officials of the extension services of Arkansas, Mississippi, Missouri and Tennessee.

The farm specialists said the cool weather has been ideal for the growth of plant lice and boll weevils in large numbers are just sitting, waiting for the first squares to appear.

In Arkansas, C. A. Vines, extension service official, said cool, damp weather has caused a lot of cotton not to germinate and some farmers are replanting.

While the boll weevils have not caused trouble yet, Mr. Vines said five times as many weevils are coming out of hibernation this year as last year. It will be June 1 before cotton will be large enough for the weevils to show up, he said.

Cotton farming activity ranged from planting to chopping and insect control throughout most of Mississippi, the Mississippi Agricultural Extension Service said.

Plant lice are present in damaging numbers in row crops, home gardens, flower gardens and legume fields, according to A. G. Bennett, extension entomologist. Housewives, homegardeners and farmers are spraying or dusting for control.

A week of generally fair weather has enabled cotton growers to "catch up" on planting chores, T. M. Waller, extension cotton specialist, said. However, cool nights and windy days are reducing stands in many areas.

Pastures and small grains continued to make good growth through the week, although some army worm damage is reported in small grains.

West Tennessee cotton farmers began round-the-clock schedules last week to take advantage of ideal planting weather.

Judd Brooks, district farm agent at Jackson, said about 50% of the region's crop had been planted with farmers installing lights on tractors for work at night. The double shift planting has allowed them to get back on schedule after rains curtailed first efforts, he said.

Corn is getting a good break from the weatherman, too. But planting is not as far advanced as is cotton.

Continued warm weather last week enabled Southeast Missouri cotton growth to continue at a rapid pace, extension officials said.

PLANT PHYSIOLOGIST DIES

RIVERSIDE, CAL.—Archibald D. Shamel, world-known plant physiologist, died here recently at the age of 77. He was principal plant physiologist here for the U.S. Department of Agriculture for 35 years from

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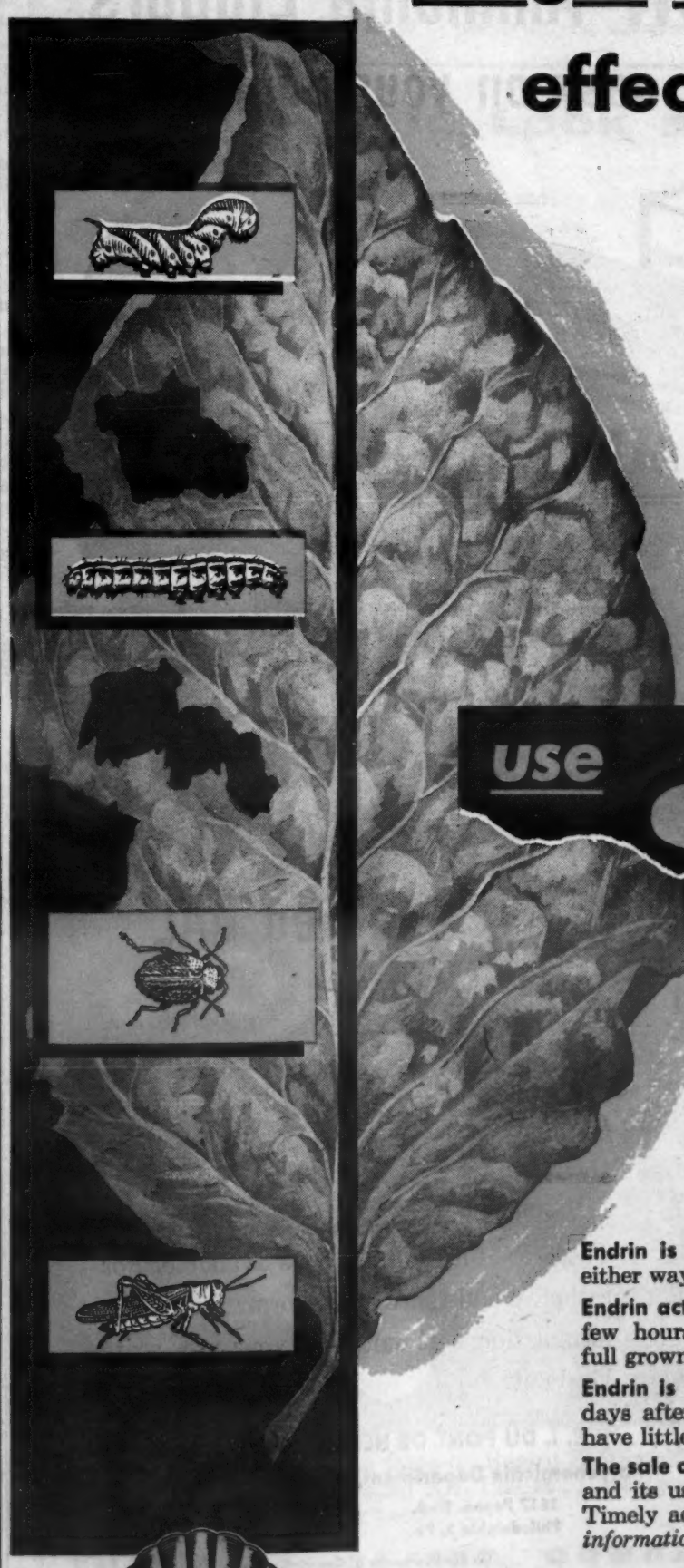

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AAI Releases Bulletin on Profitable Corn Production

MEMPHIS—The Agricultural Ammonia Institute has released a new full-color bulletin, "Producing Quality Corn," which has already been distributed to some 75,000 corn growers throughout the nation.

Jack F. Criswell, executive vice president of the AAI, said copies of the bulletin are available to both members of the AAI and non-members at a nominal charge.

"The AAI recommends adequate fertilization not merely to produce more corn," the bulletin states, "but to increase production per acre with consequent lowering of cost per bushel."

The bulletin cites a number of case histories of how profitable results were obtained from the use of agricultural ammonia in corn production. One such case was the experience of Hugh and Robert Bruce of Wooldridge, Mo., who applied 100 lb. of N as ammonia to one of two plots they farm in the Missouri River bottoms.

The eight-acre plot, so fertilized, yielded 724 bu., an average of just over 90 bu. per acre. Eight acres where no ammonia was applied made 394 bu., or just under 50 bu. per acre. The fertilized corn brought $941.20, against $512.20 for the unfertilized corn—or $429.00 more. Actual figures showed it cost 57¢ per bushel to produce the fertilized corn, which was 13¢ per bushel less than the cost of producing the unfertilized corn.

Authorities quoted on when, how and how much ammonia to apply for efficient production of corn are C. J. Chapman, University of Wisconsin; Dr. Firman E. Bear, retired chairman, soils department, Rutgers University, A. J. Ohlrogge, Purdue University; Dr. George E. Smith and Frank Stanley, University of Missouri, Lloyd Dumenil, Iowa State University, and Dr. Roger H. Bray, University of Illinois.

Spring Fertilizer Sales Slow in Kentucky

LOUISVILLE — Reports of Kentucky fertilizer manufacturers indicate that sales in the state this spring will be off from 10% to 18%. They report that the season is about three weeks late, with sales below par since last November.

Reason given for the slow sales include the congressional delay on enacting a new farm bill and the reduced tobacco acreage.

GROWTH OF TREFOIL

BURLINGTON, VT. — Although there was no certified trefoil seed industry in Vermont in 1950, farmers in the state this year will produce an estimated 45,000 lb. of certified seed with value of $46,000, according to the University of Vermont. It is estimated that before 1960 the trefoil industry will bring in over $100,000 annually in the state.

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Stephen S. Easter

Velsicol International Corp. Announces Staff Appointments

CHICAGO — James A. Winter been appointed director of sales the recently formed Velsicol International Corp., according to an nouncement by Mr. E. T. Collisworth, Jr., president of the new company which will handle Velsicol's eign trade activity.

Mr. Winter has been active in chemical industry for the past years and has been associated w Velsicol Chemical Corp., the par company, for seven years. He will located at the Velsicol Internatio Corp. headquarters in New York C

At the same time, it was announ by Mr. Collinsworth that Stephen Easter has been appointed director technical service for Velsicol Inter tional. Mr. Easter has been with parent company as a member of entomological staff for the past th years.

Formerly with the Food and Ag culture Organization of the Uni Nations, Mr. Easter dealt with c trol activities in insect infestati and was active in operations relat to grain storage in many U.N. me ber nations. A graduate of the U versity of Minnesota College of A culture, he has had widely var experience with state, federal foreign entomological and agric tural organizations.

Velsicol International Corp. is sponsible for foreign sales of produ manufactured by Velsicol Chemi Corp., Chicago. Products include te nical chlordane, heptachlor and drin. Other Velsicol products incl resins, solvents and saturants.

Salesmen's Group Plans Educational Program

NEW YORK — A three-pron educational program has b launched by the Salesmen's Asso tion of the American Chemical dustry, it has been disclosed by E Collins, association president. To ry out the plan, the association formed an educational committee der the chairmanship of J. J. O'C nell of Shell Chemical Corp., N York.

The educational program envisi the setting up of short courses chemical salesmen in such fields effective man-to-man speaking, sp reading, report writing and sell techniques. In an effort to make chemical sales fields better und stood by college students, the as ciation intends to provide universi in the New York metropolitan a with speakers and information.

The organization will also press the establishment of college cour tailored for students aiming at chemical sales career. "This is a tually untouched specific educatio field," Mr. Collins pointed out.

WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

Phosphate Survey

Supplies of phosphate in the Pacific islands of Nauru and Ocean are causing concern in New Zealand for they are rapidly diminishing. Alternative sources of supply will have to be found speedily.

Already on the cards is an intensive search to discover indigenous sources, but there is little hope of success. Many years ago the government offered a reward for the discovery of readily accessible and workable phosphate deposits, but nothing of great value was found. In 1901, deposits were located in Otago, South Island and they were worked up to 1924 and again during World War II. About 172,000 tons were brought up and around 140,000 tons of medium and high grade phosphate produced, plus 30,000 tons of low grade rock. These tonnages are small in comparison with requirements for in the last recorded year, 1954, New Zealand's usage was 518,306 long tons.

New Zealand will have to look to other overseas sources to maintain supplies and if the freight haul is lengthy, then the price will rise.

Canadian Insects

About 80,000 different kinds of insects live in Canada, according to a recent census made in the Canadian National Collection of Insects at Ottawa. In making this estimate, G. P. Holland, chief of the insect systematics and biological control unit, Canadian Department of Agriculture, and head curator of the National Insect Collection stated that "new ones are being discovered every day." Between two and three million insects are stored in the Canadian National Insect Collection.

During the 10th International Congress in Montreal in August, entomologists will visit Ottawa to see the collection.

Rust Control Chemically

Attitude of the Canadian Department of Agriculture to claims that rust can be chemically controlled is cautious. (Croplife May 14, page 18.) The interest of farmers has been aroused because they welcome anything that can beat the disease menacing their wheat crops year after year. But officials warn that several basic considerations should be kept in mind. First and foremost, although there have been enough tests to indicate that the new types of "rusticides" represent a step in the right direction, they are not completely satisfactory for the purpose intended. Secondly, there have been increased net returns per acre on some fields where they have been used early enough and often enough. And, thirdly, there are more extensive tests on these and other chemicals going on still.

The agricultural officials say the situation is not hopeless, nor is the future for chemicals to control rust any darker. There is, indeed, a place for a good "rusticide" in Canada, according to C. L. Sibbald, director of the Catelli Durum Institute at Lethbridge, Alta. But he asserts that a "rusticide" will always take a back seat to rust-resistant hybrids.

Requirements

What makes a good chemical for the control of rust? Mr. Sibbald answers the question by saying that it must be useful for other diseases as well as rust, so that it is practical for a commercial company to produce it at a reasonable cost. It must be stable in storage since it will be necessary to have large stocks available pending a bad spore infestation. Finally, it must actively kill spores on plants for several weeks after application, or else build up an immunity to them within the plant itself. This, Mr. Sibbald says, is a large order for anyone chemical to fill.

Banana Spraying

U.S. technical experts and U.S. aid funds are being used to combat sigatoka, a leaf spot disease which is threatening the important banana industry in Ecuador. The disease was observed about five years ago and now it has reached such proportions that it threatens to wipe out the industry.

Spraying from helicopters is to start in July, the first time such a means has been used. A mist-blowing system is to be used. This, it is reported, is a fairly recent development.

A high pressure pump is used to produce a fine mist of liquid fungicide. This is sprayed in fine droplets on the banana leaves with the aid of the helicopter's rotors. Ground control operations will continue over most of the affected area because the spraying is still in the experimental stage.

Brazilian Fertilizer

A new fertilizer factory is to be built in Brazil. The new company, Nitrogenio S.A., to be financed with both Brazilian and foreign capital. A Swiss group is said to be willing to subscribe several million dollars through the Union des Banques Suisse. Two possible sites have been suggested—one at Aratu, near Bahia, where use could be made of the natural gas from the Mataripe oil field, or in Minas Gerais.

Chinese Deal

A group of Belgium companies has made a deal with Red China to supply fertilizers. The sales organization, Comptoir Belge de l'Azote, which acts for several fertilizer-producing companies, has signed a contract to supply 425,000 tons of sulfate of ammonia during the year commencing July 1, 1956. Sterling will be used to make payment.

In recent years Belgian exports of fertilizers to China have been around 150,000 tons a year and the trade will receive a shot in the arm from this new business.

West German Potash

The production of potash in Western Germany during 1955, expressed in terms of K_2O was 1,697,206 tons against 1,615,184 tons in the previous year. The domestic offtake dipped to 898,768 tons from 905,000 tons, but exports showed a slight increase at 678,460 tons against 663,000 tons.

Chief buyer in 1955 was the U.K. with an offtake of 122,741 tons with Japan, at 108,735 tons, in second place. Denmark came third with purchases totaling 80,973 tons.

NEW ADDRESS

NEW YORK—Nicolay Titlestad Corp. has announced that its new address is 521 5th Ave., New York 17. The telephone number is Oxford 7-5392-3-4.

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Complete Plant Packaging.
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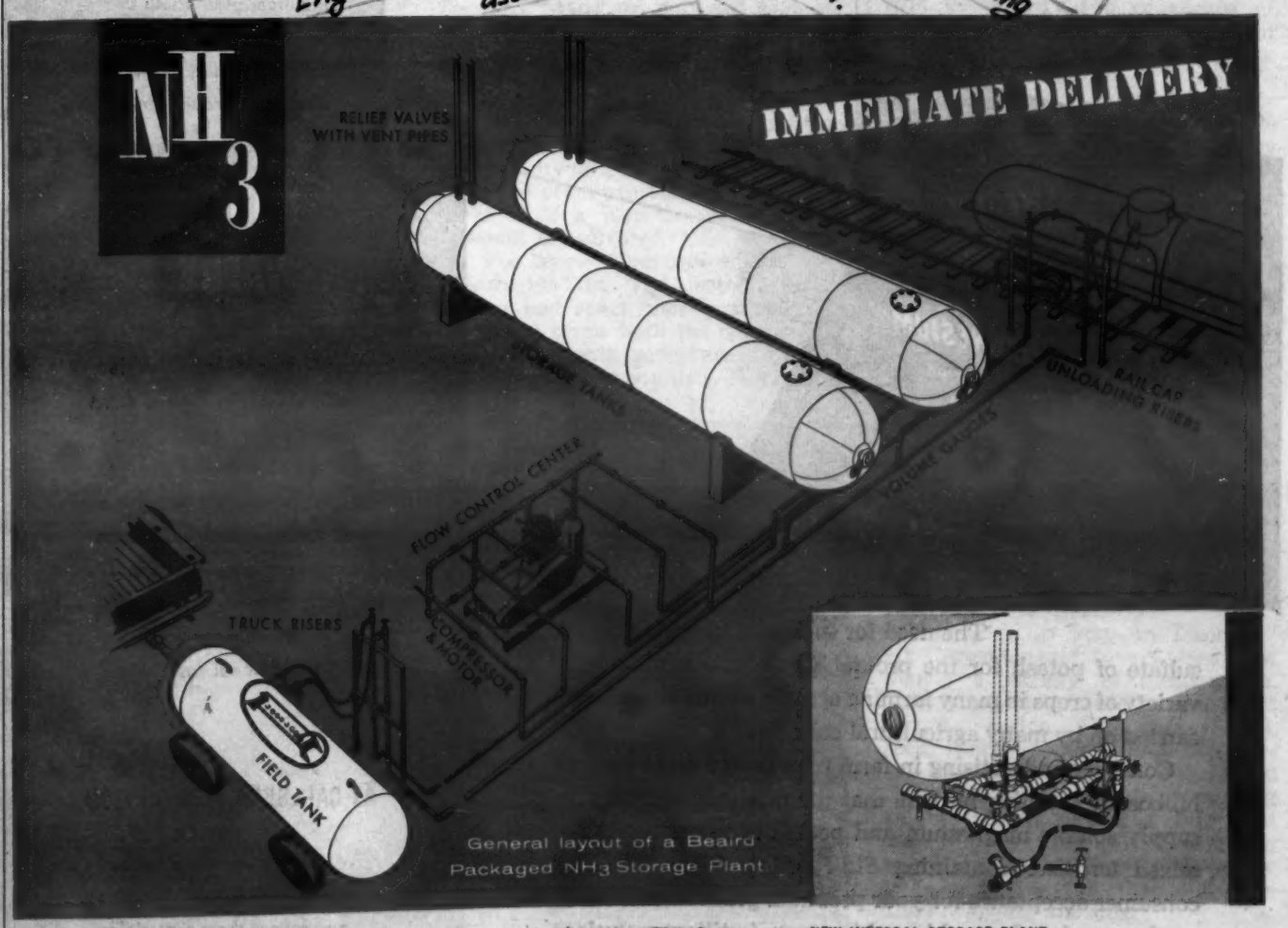

General layout of a Beaird Packaged NH_3 Storage Plant

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GRASSHOPPER CONTROL

(Continued from page 1)

There will be a minimum of 112,000 acres in the state with a possibility of more. There is still little or no hatch in the panhandle section of the state so the status of the infestation there is not known at this time.

Contracts have been awarded in Wyoming for 114,000 acres on which spraying will begin sometime between June 1 and 5.

In New Mexico bids were opened May 18 for 700,000 acres of grasshopper infested land. Spraying will probably begin about June 1.

Richard Thompson, area leader for the grasshopper control project of the U.S. Department of Agriculture, has informed the California State Board of Agriculture that California soon will be fighting what may become the worst grasshopper invasion in the state in the last 15 years.

The 1956 USDA grasshopper outlook study for California shows nearly all of the 1,318,500 acres of range and crop lands now infested with grasshopper eggs are in Northern California. Millions more acres are in danger of invasion.

Mr. Thompson said the eggs will start to hatch within a month, producing a bumper crop of pests which he said will be six times as large as last year's infestation. Grasshopper damage in 1955 was estimated at $1,390,000 by the state agricultural commissioners. He added that there are 161 species of the insect in the state, but most damage probably would come from the Warrior, Valley and Devastator grasshoppers.

The USDA study predicts very severe damage in parts of Humboldt County and severe damage in portions of Butte, Humboldt, Mendocino, Shasta, Tehama and Yuba counties. Extensive damage was forecast for sections of Humboldt, Mendocino, Modoc, Nevada, Shasta, Siskiyou and Sonoma counties, and light damage for portions of a large strip running through nearly all of Sacramento County and much of Alpine, Amador, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Lake, Lassen, Mendocino, Napa, Placer, Plumas, San Joaquin, Solano, Sutter, Tehama and Yolo counties.

Mr. Thompson said that where very severe damage is forecast, it is possible range lands and crops will be totally destroyed.

Counties in the severe area may have heavy damage with losses up to 80%, he said. Those in extensive damage or threatening zones may expect from 40 to 50% losses while up to 20% losses are likely in light damage sections.

Control of a grasshopper plague, described as "potentially disastrous," appears to be doomed to failure in many parts of New Mexico this summer.

Ranchers, hard-hit by five years of drouth, say they lack funds to match federal and state monies for a spraying program. The grasshopper control program, which must start before the end of May, is conducted by the federal government wherever the state and the landowners each supply one third of the cost.

New Mexico ranchers appealed to the State Finance Board in Santa Fe for assistance in paying their share, but the board regretfully informed them that the state does not have the $1,200,000 which would be the landowners' share.

A federal spokesman told the board that there are serious infestations in Catron, Socorro, Lea, Chaves, Lincoln, Quay, Union, Harding and part of Colfax counties.

A delegation from Catron and Socorro counties, led by Mrs. [illegible] McKinley of Datil, N.M., said the ranchers could not raise their share but said they would be willing to offer their services in any control program. The delegation asked that surface spraying, using volunteers from the ranches, would be the answer. But they were told that surface spraying would cost more rather than less, than aerial spraying.

Mrs. McKinley said that the Catron-Socorro infestation grew from 542,000 acres in the fall of 1954 to 948,000 last fall. The problem is equally serious in other counties, she said.

"Some ranchers have already gone to the wall," she said. "We have no feed. It's a losing deal. We ranchers are going to have to give up and go to town to work."

Governor John Simms promised that every possibility of aid would be investigated but offered little hope. He said state aid in the case of Catron and Socorro counties would bring similar demands from the other infested areas, and that the state simply has no place to obtain the $1,200,000 needed now.

"The only alternative is a special session of the legislature and the voting of a million dollars or so of new taxes," he said. "But I don't think the taxpayers are in any frame of mind for that."

Dan Smith, comptroller, said that the 1957 New Mexico legislature would be asked for a solution. He suggested the legislators might vote a plan to allow ranchers to pay for a grasshopper control program over the five-year term of such a project. Also, he said steps will be taken to investigate a proposed effort by the Southern Great Plains group of states to obtain federal financing of the ranchers' share of spraying costs. He said that New Mexico would try to be included in any such program.

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for the profitable production of crops sensitive to chlorides

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Consistent advertising in farm papers, and on radio and billboards is telling farmers that the most effective way to supply soluble magnesium and potash is to use a quality mixed fertilizer containing *Sul-Po-Mag*. We're building consumer acceptance for your premium grades—so cash in on the growing demand by asking your fertilizer manufacturer for grades containing *Sul-Po-Mag* for use on soils that are low in magnesium and potash. Look for the analysis on the bag . . . *N-P-K*. *Mg*

POTASH DIVISION INTERNATIONAL MINERALS & CHEMICAL CORPORATION • GENER

Grace Board Approves Merger With Cosden

NEW YORK—The board of directors of W. R. Grace & Co. has approved a proposed merger with the Cosden Petroleum Corp. of Big Spring, Texas. The merger proposal was approved by the Cosden board of directors on May 8. Both companies will submit the proposal to their stockholders at a later date.

LIME USE

BLACKSBURG, VA.—A slight increase in 1955 lime use over 1954 is reported by agronomists at Virginia Polytechnic Institute, but they say the amount used still is not as much as is needed. It is estimated that 520,306 tons of lime were used for agricultural purposes, exclusive of materials used in mixed fertilizer, in Virginia in 1955. Apparently, the agronomists say, per acre applications are pretty good where lime is being used, but not enough acres are being limed.

Special Retail Section

Better Selling

Richer Fields for Dealers

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

SHOP TALK OVER THE COUNTER FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

Dealers can be influential with some of their customers who buy on credit but aren't good enough risks to write their own tickets on what they can purchase on credit. Often the dealer has the opportunity, in his business dealings with such buyers, to diplomatically do some constructive credit work.

The dealer can show these customers in a friendly way that it is no favor to allow buyers to "get in over their heads." If diplomatically handled, such buyers can be won over into good custmers.

To those who have experienced it, the accomplishment of making good customers out of bad credit buyers is very rewarding. Many customers, from time to time, find themselves strapped financially. Such a customer, when he walks into your store, needs understanding and a willingness on your part to sincerely help him with his money matters, if he is willing to discuss the situation.

A dealer will find a real thrill in helping out a customer who is having credit difficulties and, if sincere, will gain his confidence. The dealer will then not only protect himself from a possible loss, but if successful, assures himself of retaining a loyal and grateful customer for a long time.

Salesman's Prayer

O Lord,

In these days when selling is tough, help me to remember:

That humility is still the hallmark of the successful salesman;

That the seller is always servant to the buyer;

That arrogance costs as many orders as ignorance of the line;

That I have too short a memory ever to tell a lie, and that buyers have too long a memory ever to forget a wrong.

Above all,

Help me to remember that no one ever lost an order because quality was too high or service too good.

Amen.

(From the Service Guide, publication of Southern States Cooperative.)

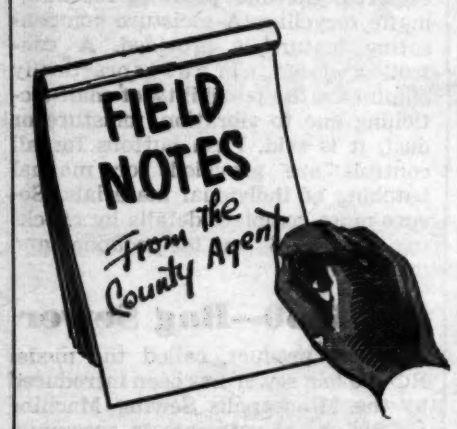
Corn Earworm Rated Most Damaging Insect In Virginia in 1955

BLACKSBURG, VA. — The corn earworm leads the list of Virginia's ten most damaging insects in 1955, according to Arthur P. Morris, Virginia Polytechnic Institute associate entomologist in charge of the state's insect survey program.

The severe outbreak of corn earworm damage, second since 1947 in the state, hit peanuts particularly hard late in the summer. The insect also damaged alfalfa, corn and other crops.

Other insects on the list are the housefly, rice weevil, angoumois grain moth, codling moth, alfalfa weevil, plum curculio, Mexican bean beetle, spotted cucumber beetle (called southern corn rootworm in the larvae stage) and the Japanese beetle.

Aphids and spider mite groupings could have been put in the first 10 on an over-all basis, but there were several different species of each involved.



FIELD NOTES From the County Agent

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

The whole life and welfare of America is rooted in the soil; the good earth feeds us all, and from the country, the small towns and the small cities comes the country's religious and spiritual leadership.

The town and country Church is the heart and center of the community. It must teach the stewardship of soils as well as the stewardship of souls. It must be the leaven of community life, and don't forget it has a relation to everyday problems such as agriculture, library service, good roads, schools, health, food, entertainment, land use, water supply and the homes.

Its ministry includes many activities. In great cities these activities and functions are taken care of by other agencies.

What happens to the rural and small town Churches is not the problem of country communities alone. It concerns the entire nation. The people in very large cities should have a direct interest in country churches, because to a great degree the future citizens of the large centers are being trained for life in and around the small town and country Church.

Opportunity knocks now, for community leadership and the church should point the way. Every community should have many good leaders.

The soil and its people build homes and foster children for the highest social use. It is the duty of the Church to teach leaders the responsibility of helping their neighbors rediscover the rural communities.

Churches were established for communities and not communities for the church. It's no spare time to be a good citizen.

Texas Firm Finds It Profitable To Tap Growing Farm Chemical Market in Semi-Arid Region

By JESS F. BLAIR
Croplife Special Writer

The Porter Feed & Seed Co. of Sweetwater, Texas, doesn't specialize in farm chemicals, but it found it a lucrative field to add to the regular feed and seed business.

And in their usual pleasant, aggressive way the owners went out after this business when farmers became interested in insecticides and fertilizers.

In their large store, they have one part set aside for farm chemicals, garden and lawn supplies. Each department is attractively arranged. For gardens, they have seed, soil conditioners, plant food, insecticides and garden tools. They have a neat island display of animal health remedies and small tools needed for working with animals. In another display, lawn items are shown, in addition to an array of lawn mowers.

The two partners, Bob Carpenter and Tom Porter have learned to anticipate the changing needs of the area. Both are graduates of agricultural colleges, and both spent several years working for government farm agencies before deciding to go into business for themselves. Mr. Porter first put in the store, then sold a half interest to Mr. Carpenter.

"One trend we noticed," said Mr. Carpenter, "is the steady movement from farm to city. These displaced farmers have the soil in their blood, and when they move to town they want to grow gardens, shrubbery and maybe put in a small orchard. These city people and suburban farmers are often overlooked by a dealer, but it is a lucrative business and should be nurtured."

The store advertises liberally by every medium. The partners attend farm and ranch meetings and stay on good terms with the county agricultural agents, government agencies and experiment stations. Being technically trained, they know the value of staying up with the fast-changing farm chemical field.

"Running a store of this kind," said Mr. Carpenter, "is just like operating any kind of up-to-date business. You've got to keep the place clean, the merchandise well-arranged, have a traffic-stopping store front and keep employees that know how to meet people.

"Selling farm chemicals requires a special knowledge of the products. When a customer comes in here and asks about a product, we don't just point to a sack and say, 'The label says this stuff is o.k. for your purpose.' We must know what is in it, and how it should be used, before we ever try to sell it. Because our recommendations are usually based on study and experience, we seldom get a kickback for selling something the customer can't use."

They find that since they departmentalized the store, the percentage of impulse buying is very high, especially with garden and lawn merchandise. When a person comes in for seed, he often buys fertilizer, tools and maybe other items.

They built a small nursery about two years ago, and are finding it the best investment they ever made. Now with every bundle of shrubs or plants, goes some fertilizer, plant food and tools such as clipping shears, shovels and gloves.

Another thing that has paid off is in getting a few customers outside the regular trade territory. They had not sold much fertilizer, because in the semi-arid climate the dryland farmers seldom received enough rain to utilize it. However, they had gone to some trouble and expense to find a few customers in an area near a smaller town. This business didn't amount to much except in good will.

Finally, irrigation water was discovered in the area, and the water wells began to go down. The farmers who had traded with Mr. Porter and Mr. Carpenter started coming to the store for fertilizer and irrigation supplies. Along with them the neighbors also found the firm a pleasant and profitable place to trade. Irrigation is rapidly expanding, and now much of the new business is coming to the Porter Feed & Seed Co.

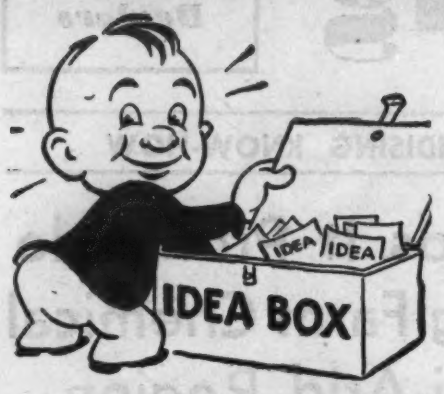
"In order to stay in business," Mr. Carpenter said, "every store must handle a variety of merchandise. This is especially true in a dryland farming region. This means feed, seed, ranch supplies, lawn and garden merchandise and agricultural chemicals. The chemicals came along rather late in this area, but right now we're getting ready for a big expansion in this line. It looks like it may be the tail that will soon start wagging the dog."

TEXAS DEALER — Bob Carpenter, co-owner of the Porter Feed & Seed Co., Sweetwater, Texas, is a graduate of Texas A&M, as is his partner, Tom Porter. They have found farm chemicals a profitable item for sales to both country and city customers.

SORGHUM WEED CONTROL

COLLEGE STATION, TEXAS — Under dryland farming conditions at the Amarillo Experiment Station, stands of broadleafed annual weeds in sorghum were reduced 83% when the soil was extremely dry, and 88% under more favorable growing conditions, with ½ lb. of 2,4-D ester per acre, in Texas A&M tests.

Better Selling
Richer Sales Fields for Dealers



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 5454—Spray

Two forms of Lindane spray for grain elevators, boxcars, granaries and flour mills are described in a new leaflet prepared by the E. H. Leitte Co. One is a 1% Lindane spray solution (ready-to-use) and the other is a 20% concentrate bin and mill spray (water miscible). Both forms are said to be effective in the control of granary weevil, rice weevil, saw-toothed grain beetle, confused flour beetle, Mediterranean flour moth, cadelle, roaches and other insect pests. Residual effectiveness is said to be from four weeks to five months. To secure the leaflet check No. 5454 on the coupon and drop it in the mail to this publication.

No. 6413—Protective Coatings

The Shutt Process Equipment Co. announces its new system of statistical evaluation and selection of protective coatings, called the All-Coat engineered coating system. It is claimed to permit selection of optimum type of topcoat, primer and surface preparation specification, which under given environments and contemplated maintenance procedures, results in the lowest maintenance cost for an indefinite time. The basis of the system is a statistical study for the past 10 years on various corrosive environments and includes consideration of chlorinated rubber, vinyl, fish oil, alkyd-phenolics, neoprenes, bitumens, phenolics, furanes and the more recent epoxys and isocyanates. The resultant selection is said to be based on a summation of all factors which affect the total cost of a system including chemical resistance, surface preparation, thickness, labor, aging properties, coverage, cost and adhesion. Secure more complete details by checking No. 6413 on the coupon and mailing it to this publication.

No. 5416—Weigh Batching System

An electronic weigh batching system that will work in conjunction with IBM's punch card system has been developed by the Heltzel Steel Form and Iron Co. Called the Helcomatic Batchmaster, the unit is said to have application in the feed, grain, fertilizer, chemical and other fields. The new unit is housed in a console the size of a standard filing cabinet. Through the use of IBM punch cards, the unit automatically selects and weighs out the precise amount of any number of materials, the company states. The combinations of material weights and selections are varied and can be changed instantaneously. Where repetitive batches are required, the unit provides for automatic recycling. A moisture compensating feature is provided. A controlled closed circuit practically eliminates the possibility of malfunctioning due to vibration, moisture or dust, it is said. Push buttons for all controls are provided for manual batching of individual materials. Secure more complete details by checking No. 5416 on the coupon and mailing it.

No. 5450—Bag Sewer

A new product, called the model RC-100 bag sewer has been introduced by the Minneapolis Sewing Machine Co. Height adjustments to accommodate bags from 5 lb. to 100 lb. can be made. The height of the sewing head and conveyor height can also be regulated to conform with the operator's most comfortable sewing position. The model is equipped with a cast aluminum sewing head that sews paper, cotton or burlap. The standard model has a 6-ft. conveyor from center to center of pulleys. The machine is 5 ft. high and 3 ft. wide. To secure more complete details check No. 5450 on the coupon and drop it in the mail.

No. 5451—Bag Closing Heads

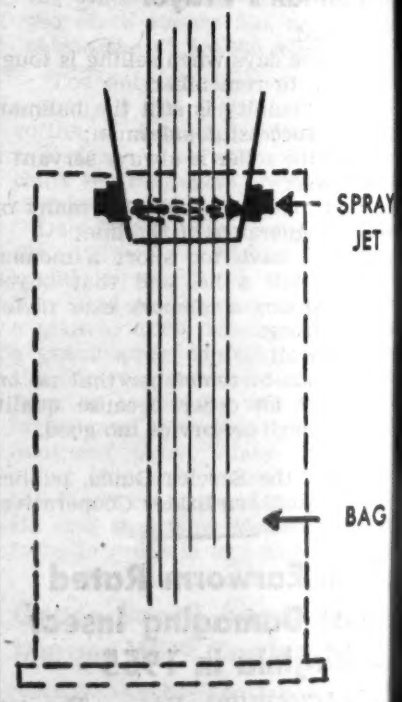
The Union Special Machine Co. announces the development of a new class of bag closing machine sewing heads—class 53600. These new units are complete and direct replacements for the older class 14500 machines and are designed for closing light to heavy weight cotton, burlap and osnaburg bags and one- to three-ply paper bags. All units in the new class are single needle, high throw machines and incorporate numerous improvements and new features, according to the company. Rated speed has been increased 50% and an enclosed automatic lubrication system that is fed by two external reservoirs is now used, according to company officials. For particular production requirements, seven individual styles of machines are available in the new line. They include three units for mounting on auxiliary bag machines and four suspended head units with variations of counterweight or top lock balancer. Secure more complete details by checking No. 5451 on the coupon and mailing it.

No. 6412—Soil Fumigant

An illustrated informational bulletin on Bromofume soil fumigant has been issued by the agricultural chemicals division of American Potash & Chemical Corp. for use in controlling nematodes in the growing of numerous truck and field crops. The folder includes information on uses for the product, proper soil preparation, methods of application and recommended dosages. Company officials state that the product, an ethylene dibromide fumigant, will increase production in nematode-infested lands, in the growing of such crops as beans, carrots, potatoes, sweet potatoes, lettuce, tomatoes, sugar beets and cotton. To secure the bulletin check No. 6412 on the coupon and mail it to Croplife.

No. 6410—Insecticide Injector

An injector for adding liquid insecticides to fertilizer, called by the trade name, Jetrol, is being marketed by the Bemis Bro. Bag Co. In new literature published by the company it is stated that the injector adds liquids to products prior to bagging, automatically sprays the product falling into the bag, measures the exact quantity of insecticide and diffuses it thoroughly and does not affect the fertilizer weighing process. As the tumbling product passes by the injector nozzles, automatically



the four nozzles of the injector spra liquid insecticide into the fertilize Spraying time is controlled by a justment of an air pressure regul tor. Secure detailed literature abo the injector by checking No. 64 on the coupon and dropping it the mail to Croplife.

No. 6409—Aqua Ammonia Converter

A new brochure has been prepar by the J. C. Carlile Corp. on a li of aqua ammonia converters for agricultural industry, giving a scription of the operation of the u and the handling of aqua ammon The company's ammonia conver unit is claimed to provide an a quate mixing chamber for effici and complete reaction of anhydr ammonia and water; cools the solution sufficiently to permit

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

Send me information on the items marked:

- ☐ No. 5416—Weigh System
- ☐ No. 5436—Bag-Opening Device
- ☐ No. 5439—Bag Coating
- ☐ No. 5450—Bag Sewer
- ☐ No. 5443—Grain Fumigant
- ☐ No. 5451—Bag Closing Heads
- ☐ No. 5454—Spray
- ☐ No. 6403—Soil Sampler
- ☐ No. 6407—Tractor Shovel
- ☐ No. 6409—Converters
- ☐ No. 6410—Insecticide Injector
- ☐ No. 6411—Dust Mask
- ☐ No. 6412—Soil Fumigant
- ☐ No. 6413—Coatings
- ☐ No. 6414—Applicator

NAME .....

COMPANY .....

ADDRESS .....

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Croplife
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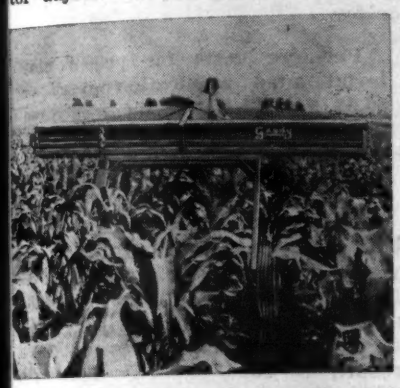
storage in low pressure tanks, and carries on these two steps out of contact with the atmosphere, thus preventing loss of nitrogen during processing. The converter is made in a wide range of sizes. Secure the brochure by checking No. 6409 on the coupon and dropping it in the mail.

No. 6414—Applicator

Corn borer control by use of a new machine called by the trade name, Gandy Hi-Lo insecticide applicator, is announced by the manufacturer, the E. S. Gandrud Co., Inc. Company officials state that the applicator drops metered amounts of dry chemical granules into corn whorls to kill corn borers as they try to enter the stalk. The applicator adjusts to heights of 2½-5 ft.



and spreads to 12- to 14-in. ribbon of granules over each of four rows. The granules combine with dew and rain water in the corn whorl to form a concentrated solution at the point where the newly-hatched borer attacks the stalk, it is claimed. Since granules stay only in the whorl, DDT contamination is greatly reduced, the officials state. A tractor-drawn unit, the applicator drops the granules after plants have returned to an upright position. Dry chemical granules are dropped into corn whorls. Secure more details by checking No. 6414 on the coupon and mailing it to Croplife.

No. 6411—Dust Mask

Flexo Products, Inc., has prepared a new folder on its dust mask, called by the trade name, Flex-A-Foam. The folder states that the mask weighs one ounce, filters non-toxic dusts as small as 125,000 of an inch, permits easy breathing and has four long-wearing, interlocking parts—all washable. A price chart for the masks, filters and headbands is included in the folder. To secure it check No. 6411 on the coupon and mail it to Croplife.

No. 5443—Grain Fumigant

New literature concerning its grain fumigant, "80-20," is available from the Stauffer Chemical Co. The product is described as a formulation for control of insects infesting bulk-stored seeds and grains in farm bins, granaries and elevators. Application instructions for railroad cars and elevator and farm bins—including large and small structures—are available. Fumigation during mild weather is suggested for best results. Dosage and precautionary information are also provided. Secure the information by checking No. 5443 on the coupon and mailing it to this publication.

No. 6403—Soil Sampler

Elano Corp. has available new literature on its product called the Hoffer soil sampler. The sampler's basic features are a probe cup with heat treated cutting tip that resists blunting, bending or twisting, according to a company spokesman. The cup is machine drawn from the main tube in such a manner that it cuts a soil core slightly smaller than the tube itself, permitting the core to rise in the tube without breaking. Open-side construction permits analysis of the soil at various depths. The sampler also makes a planting tool, it is stated. Literature giving more complete information will be mailed if you will check No. 6403 on the coupon and mail it to Croplife.

No. 5439—Multiwall Bag Coating

The St. Regis Paper Co. has developed a multiwall bag coating, called by the trade name, "Lustergrip," which is claimed to be non-skid, and provides improved printing characteristics, less ink rub and a cleaner package. The company announcement states that a non-toxic coating is applied to provide an even, smooth surface. Printing is done prior to application of the coating. Secure more complete details by checking No. 5439 on the coupon and dropping it in the mail.

No. 6407—Tractor-Shovel

A new tractor-shovel, known by the trade name, "Ho Payloader," has been introduced by the Frank G. Hough Co. The unit has a heaped capacity of 2¼ cu. yd. and a struck capacity of 1¾ cu. yd. Features of the unit are a complete no-stop power shift transmission and torque converter and planetary axles and torque proportioning differentials. The "pry out" bucket action and 40° breakout at ground level have been retained from older models. The model is available with either gasoline or diesel power. Check No. 6407 on the coupon and mail it to secure more complete details.

No. 5436—Bag Opening Device

Arkell & Smiths has applied for patents on its newly-designed multiwall bag-opening device called the "Zip-Top." When adapted to the standard A & S sewn valve or sewn open-mouth bag, the "Zip-Top" permits easy opening with one sharp pull of the tab, it is claimed. The opening thus formed extends the full width of the bag to facilitate pouring. The new feature is available without upcharge from any of the three A & S multiwall bag plants. Further information on this innovation may be obtained by checking No. 5436 on the coupon.

SALESMEN...
to help boost
YOUR profits!

LION Advertisements Sell LION Nitrogen, *and* *Your Mixed Goods, Too!*

Continuous Lion advertising appears in leading farm publications, month-after-month, to pre-sell the Lion brand to farmers—and to sell the value of *your mixed fertilizers as well!*

Current advertisements are appearing in Farm and Ranch-Southern Agriculturist, Progressive Farmer, The Farmer, Nebraska Farmer, Kansas Farmer, Prairie Farmer, Wallace's Farmer & Iowa Homestead, Wisconsin Agriculturist and Farmer, Missouri Ruralist and Missouri Farmer. All of these advertisements are in color.

Each Lion advertisement promotes the economic benefits of properly using fertilizers, including Lion Ammonium Nitrate, to help increase the farmer's profits. Each advertisement sells *hard* on the importance of soil tests in the intelligent use of all commercial fertilizers. Lion, a leader in nitrogen production, leads the way to good fertilization practices . . . to better profits for you!

LION'S QUALITY LINE OF NITROGEN FERTILIZER MATERIALS

LION ANHYDROUS AMMONIA—82.2% nitrogen. Quality guaranteed.
LION AQUA AMMONIA—Ammonia content above 30%—other grades to suit your requirements.
LION AMMONIUM NITRATE FERTILIZER—Improved spherical pellets. Guaranteed 33.5% nitrogen.
LION NITROGEN FERTILIZER SOLUTIONS—Various types to suit your particular manufacturing needs.
LION SULPHATE OF AMMONIA—White, uniform, free-flowing crystals. Guaranteed 21% nitrogen.

LION OIL COMPANY
A DIVISION OF MONSANTO CHEMICAL COMPANY
EL DORADO, ARKANSAS

DISTRICT SALES OFFICES: Lion Oil Building, El Dorado, Ark. • Insurance Exchange Building, Des Moines, Ia. National Bank of Commerce Building, New Orleans, La. • 1401 Building, Atlanta, Ga.

FARM SERVICE DATA

Extension Station Reports

Virginia Polytechnic Institute specialists advise gardeners to take with a grain of salt any claims salesmen may make that they have blight-resistant tomato plants for sale. There is no such thing available as yet, and gardeners have to depend on favorable weather conditions and dusts or sprays to control blight, the specialists say.

S. B. Fenne, plant pathologist at VPI, suggests spraying or dusting tomatoes as soon as the first fruit has set, or when the fruit is about the size of marbles. Repeat applications about once each week throughout the season. All leaf diseases are much more destructive during wet weather.

★

Two Kentucky agronomists point out that low-cost feed is a "must" these days in view of lower prices for livestock and livestock products. This does not mean a poor quality feed, but one produced at the least possible cost, whether it be grain or forage, say George D. Corder and Harold F. Miller, of the University of Kentucky agronomy staff.

Mr. Corder and Mr. Miller recommend that special attention be given to pastures this year.

The two agronomists emphasize that it is cheaper to maintain well established forage crops through a yearly top-dressing of fertilizer than it is to reseed them.

★

Demonstrations will continue to be the main arguing point of Alabama's "More Corn Per Acre" campaign in 1956.

Except during two bad drouth years, state corn yields have risen steadily since demonstrations were started 10 years ago. The average yield then was only 15.5 bu. of corn per acre. Last year, with 4500 farmers and over 500 4-H boys growing corn in demonstration plots, the state's corn crop hit an unprecedented 30 bu. per acre. Yields from the highly fertilized, well managed demonstration fields were way above that average, according to J. C. Lowery, Alabama Polytechnic Institute extension agronomist.

★

Results of Texas A&M tests show that on selected Blackland farms in 1955, cotton yields averaged 321 lb. of lint per acre where planting was done before May 15, compared with 118 lb. where planting was done later in the season. The value of lint produced per acre of early cotton was $97 and was only $34 for late-planted cotton.

Per-acre costs for poison material and application averaged $5.57 and $1.16 for the respective groups, making the early-planted, insect-controlled cotton worth $58 more per acre.

On one farm in particular, where both early and late planting occurred, yields averaged 400 and 242 lb. of lint per acre, respectively. The value of the early cotton was nearly 2¢ lb. more than the late cotton. As a result, the early-planted cotton, with adequate insect control, returned $55 more per acre than did the late cotton, even though the latter also was poisoned, particularly late in the season.

★

Circular 104, Minor Elements For Field Crops, 1956, is being distributed by the South Carolina Agricultural Experiment Station. It was prepared by Norwood R. Page, associate agronomist for the station.

Mr. Page says that during the last few years the South Carolina station has conducted extensive tests of the requirements and needs of field crops for boron, manganese and other minor elements. He calls attention to the fact that in the fertilizer recommendations of Clemson, as given in Station Circular 103, boron and manganese are recommended for cotton and boron for alfalfa. He explains that, as more data are accumulated, future recommendations may be expanded to include other minor elements and crops.

In discussing yield responses from the use of minor elements, he points out that in replicated experiments at both Clemson and the Sandhill Station boron and manganese applications have significantly increased the yields of lint cotton.

He adds that in cooperation with county agents of the Clemson Extension Service one-acre survey demonstrations have been conducted over the state for three years in connection with the State 5-Acre Cotton Contest. The increases of lint cotton from the use of boron and manganese derived from colemanite and manganese sulfate, respectively, or from a frit containing boron and manganese when applied in combinations of various amounts, varying from 10 to 30 lb. per acre, have varied from 24 to 54 lb. of lint cotton per acre.

He reports that alfalfa has consistently responded to applications of boron but not to manganese. Specific crop recommendations for the use of colemanite-manganese sulfate and a boron-manganese frit in the production of cotton, and of colemanite for the production of alfalfa are given in the circular.

FIELD DAY

GAINESVILLE, FLA.—The University of Florida Agronomy Field Day will be held here May 28.

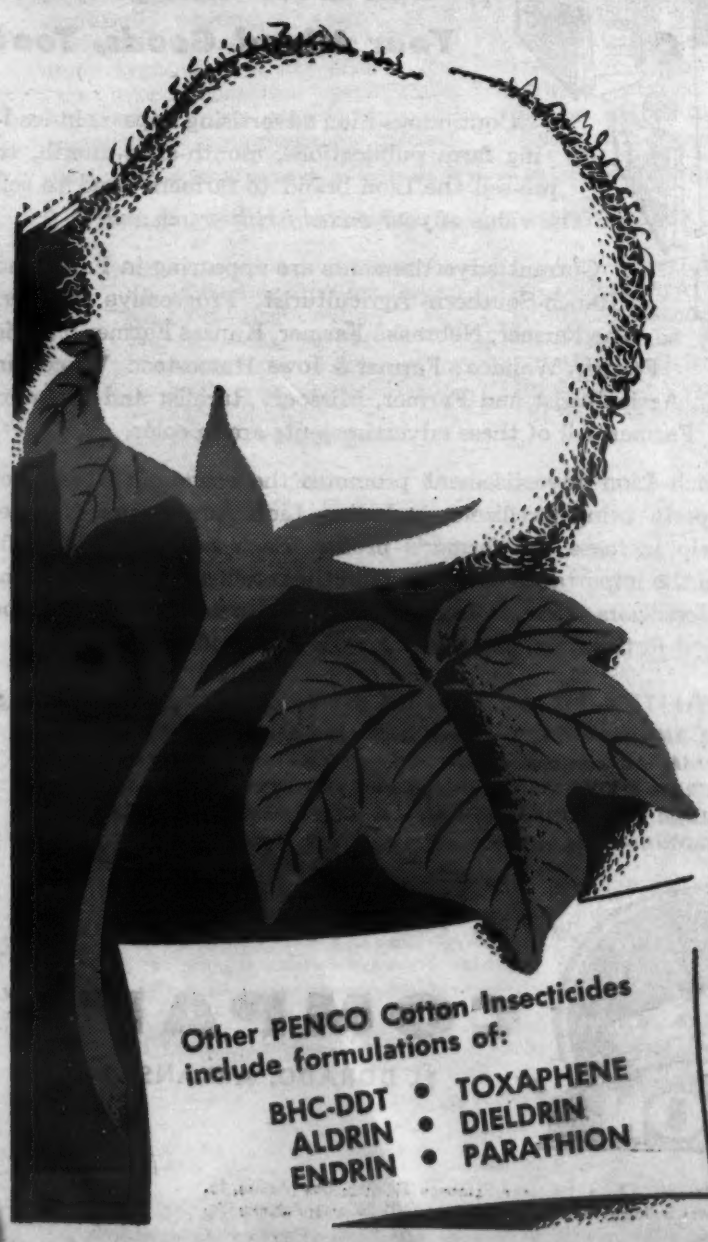
THIS YEAR

For Complete Cotton Insect Control Include the "Old Stand-bys"

PENCO® PENCAL® (LOW-LIME CALCIUM ARSENATE)

AND

PENCO Calcium Arsenate



Other PENCO Cotton Insecticides include formulations of:

BHC-DDT • TOXAPHENE
ALDRIN • DIELDRIN
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Made in the South . . . for the South

PENCO PENCAL (low-lime Calcium Arsenate)

- Compatible with BHC-DDT-PARATHION-MALATHION
- Time proven
- At regular Calcium Arsenate price

PENCO Calcium Arsenate

- Reliable
- Now in new favor
- An old-time favorite

For bulletins write or 'phone Pennsalt plants, Bryan, Texas or Montgomery, Alabama

PENNSYLVANIA SALT MANUFACTURING COMPANY OF WASHINGTON

TACOMA, WASHINGTON

Aurora, Ill. Bryan, Tex.
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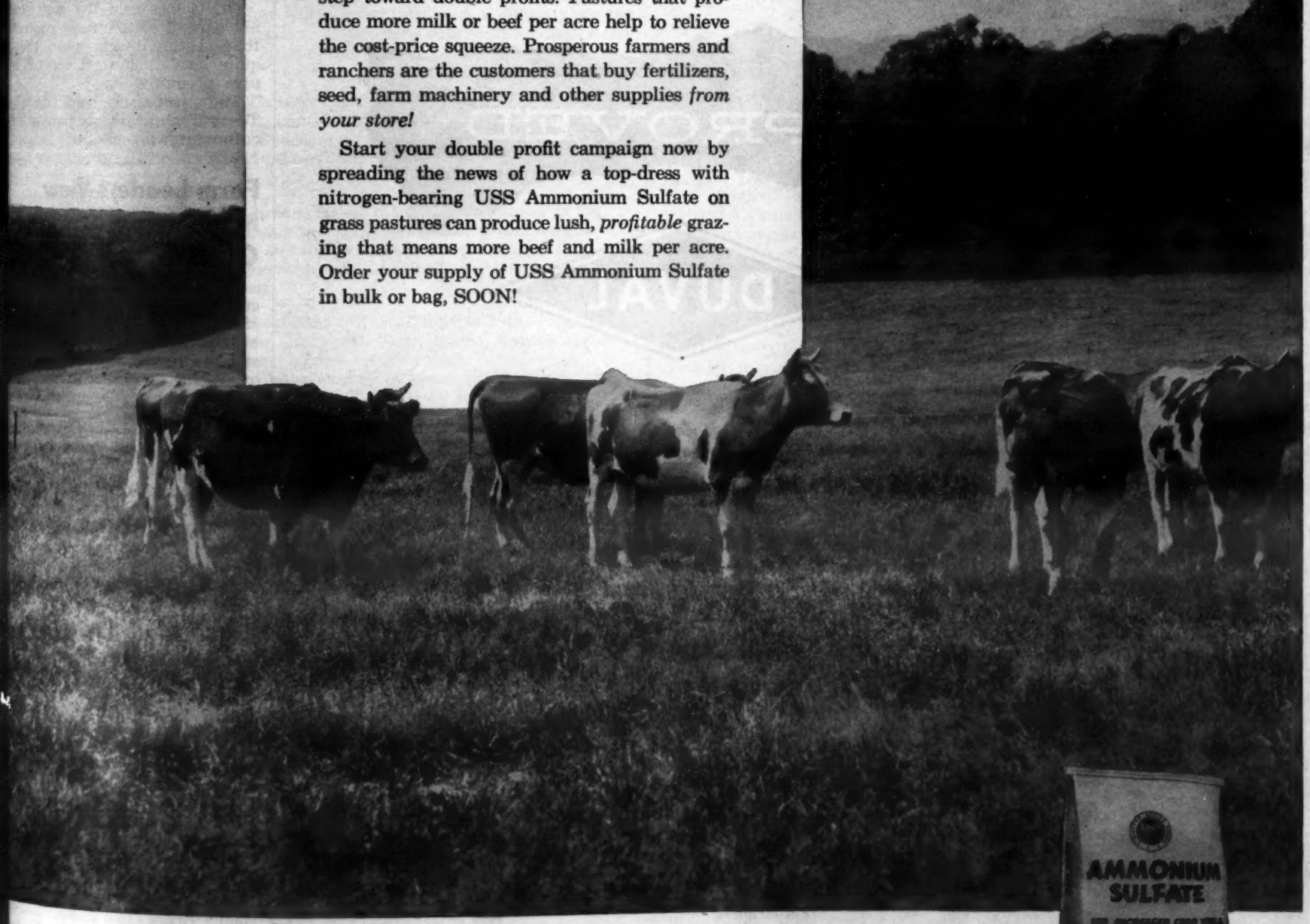
Pennsalt Chemicals

Grass pastures top dressed with *USS Ammonium Sulfate* mean double profits!

Grass pastures have a mighty appetite for nitrogen. Some grasses demand up to 120 pounds of nitrogen per acre to produce top-yielding, palatable, high-protein growth. You have an important part in making sure your customers' pastures produce enough forage and grazing to bring top profits.

By explaining to farmers in your area just how USS Ammonium Sulfate can act as a pasture profit-booster . . . you're taking the first step toward double profits. Pastures that produce more milk or beef per acre help to relieve the cost-price squeeze. Prosperous farmers and ranchers are the customers that buy fertilizers, seed, farm machinery and other supplies *from your store!*

Start your double profit campaign now by spreading the news of how a top-dress with nitrogen-bearing USS Ammonium Sulfate on grass pastures can produce lush, *profitable* grazing that means more beef and milk per acre. Order your supply of USS Ammonium Sulfate in bulk or bag, SOON!



USS Ammonium Sulfate

UNITED STATES STEEL

Dates Set for Second Applicator School At Texas A&M

COLLEGE STATION, TEXAS—The second Aerial Applicator Pilot Training School at Texas A&M College will be held Nov. 5 to Dec. 15, 1956, and applications from prospective students now are being accepted, according to Prof. Fred E. Weick, who heads the school.

The first such school was offered by A&M in 1955, and has been acclaimed by aerial applicators and agricultural leaders. All members of the first class who wanted them now have jobs as aerial applicator pilots.

Requests about entering the school have been received from almost every country in the world.

Pilots who enter the school receive a balanced curriculum containing both classroom work and flight training.

The classroom work, which deals with insect pests, weeds and brush, chemicals which control each, the biology of control, safety practices in dealing with insecticides and herbicides, customer relations and legal aspects of agricultural flying, is offered by regular members of the teaching and research staff of the college.

In the flight training portion, students learn safe, efficient flying and techniques for thorough application treatment. They fly most types of airplanes used for aerial application.

A commercial pilot's license and a minimum of 500 hours in light planes —or sponsorship by a member of the Texas Aerial Applicators' Assn.—is required for the flying portion of the school.

Inquiries should be addressed to Fred E. Weick, Agricultural Pilot Training School, Box 3 FE, College Station, Texas.

Herbicides Successful In Texas Small Grain

ABILENE, TEXAS — Herbicides have now passed the test stage in this area, and are being used successfully to combat weeds in the small grain fields. According to H. C. Stanley, county agricultural agent, farmers got effective control of sunflowers, Russian thistles and cocklebburrs by using a 2,4-D herbicide, in an ester form. The cost averages about 55 cents an acre.

Value of Early Insect Control Stressed At Texas Meeting

LUBBOCK, TEXAS—At the South Plains cotton insect co meeting, W. L. Owens, entomol at the Lubbock Experiment Sta told the 100 or more agricult workers that early insect control proved invaluable in producing cotton of a better quality.

County agents, vocational agri tural teachers, distributors, aerial plicators, insecticide formulators other professional agricultural w ers attended the one-day mee which was held at Texas Tech lege.

Topics discussed were "The ton Insect Control Situation" by J. C. Gaines, head of the entomo department at Texas A&M Coll "How Cotton Insects Affect Co and Cost Farmers Money," by C Spencer of the Texas Cotton Crushers Assn., and "Observat in Relationship to Cotton Produc Methods and Insects" by Don Jones, superintendent of the Lubb Experiment Station.

In addition, Asa Burroughs, ex tive secretary of the Aerial Appl tors Assn., Austin, Texas, discus various problems in aerial appl tion.

The insect guide which is c piled and distributed by the Ex sion Service every year was cussed by Dr. F. M. Fuller, Ex sion Service entomologist.

Dr. Gaines said the most imp ant part of cotton insect control to find the insects when they quite small and start control m ures promptly.

The meeting is held annually Texas Tech at the beginning of cotton growing season.

Farm Leaders View Mississippi Research On Sod-Seeding

STATE COLLEGE, MISS.—A cultural leaders representing states met here recently to re Mississippi's research and see dem stration results with the sod-see of grazing and other crops.

The 23 visitors represented ex sion services, experiment stations the Soil Conservation Service.

The group learned of the deve ment of sod-seeding during the 10 years in Mississippi, its use conservation program, and the u zation of sod-seeded crops by stock.

Hailed as one of the greatest and water conservation progr ever developed, the sod-seeding ciple had its beginning in Missis in 1945. This state has continue lead in sod-seeding work, which spread to many other states.

Sod-seeding machines now are almost year-round in building tures and conserving the soil.

In a single operation, these chines do seedbed preparation put down seed and fertilizer drill. They do not damage perma sod, but make it better the follo year. Erosion is prevented and ter grazing made possible on sod for grazing in the summer.

States represented were M sippi, Texas, Oklahoma, Louisi Arkansas, Tennessee, Kentu Georgia, Florida and Alabama.

SPOT OILING

COLLEGE STATION, TEXA Cotton producers in 104 Texas c ties used the spot-oiling metho controlling Johnson grass last on 73,637 acres of cotton, acco to Fred C. Elliott, extension c work specialist.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Best Fertilizers Co. announced it had started on a $1 million expansion of its fertilizer plant near Lathrop, Cal. . . . Potash deliveries by seven major American producers during the first quarter of 1956 were 3% lower than those in the corresponding period a year earlier.

Borax Consolidated Ltd. announced in London that it would form a company in the U.S. to take over the greater part of the company's assets and operations in America. . . . The need for training and educating dealers who handle pesticides was stressed at the annual meeting of the Carolinas-Virginia Pesticide Formulators Assn.

U.S. Potash Co. is planning to merge with Borax Consolidated Ltd. of England, according to an announcement by U.S. Potash Co. officials . . . Work started on a new Swift & Co. plant food factory in St. Joseph, Mo.

Congo growers of pyrethrum announced plans to erect a $500,000 pyrethrum-extraction plant in Africa . . . Discovery of a Mediterranean fruit fly in Florida set off an all-out eradication battle, headed by the U.S. Department of Agriculture. It was the first Medfly invasion of the U.S. since 1929.

The presence of unusually large populations of boll weevils were reported in South Carolina, Louisiana, North Carolina and Georgia by the USDA, following spring surveys in these areas. Farmers were urged to keep a watchful eye on their cotton fields and to be prepared to apply control materials on short notice if the situation should require such action.

Edmund Greene was named director of marketing research for Monsanto Chemical Co., St. Louis, Mo. Mr. Greene was formerly assistant director of the company's advertising department. He succeeded Shea Smith III, who became assistant to the president of Monsanto.

Infestations of alfalfa-destroying insect pests were reported from various parts of the country. The spotted alfalfa aphid was listed by Kansas as its No. 1 pest, while alfalfa weevils were reported as active in Maryland. Late in April the House agriculture committee was studying the factors involved in granting financial aid to farmers to help them to control spotted alfalfa aphids. USDA witnesses indicated that the best defense is to develop insect-resistant crops.

A proxy contest at Virginia-Carolina Chemical Corp. loomed as Rupert T. Zickl, and associates from New York, sought to gain a majority on the V-C board. Joseph A. Howell, president of the corporation, in an open letter to Mr. Zickl asked for further information about the latter's intents and purposes.

A bill was introduced into Congress asking for a $15 million allocation for the purchase of insecticides to control the spotted alfalfa aphid, particularly in the southwestern states. Sponsors of the bill were doubtful, however, that any immediate action would be forthcoming because of the jam brought about by the farm bill.

The Food and Drug Administration made some changes in its administrative techniques under the provision of the Miller amendment. A re-alignment of fees and methods of figuring the legal tolerances where a number of pesticides are involved, were features of the new policy announcement.

Spotted alfalfa aphid was prominent in insect reports from various sections of the country. Reports from Maryland, New Mexico, Kansas and Missouri all told of damage being done by the alfalfa insect.

Presidential veto of the farm bill was seen by plant food industry leaders as creating an encouraging situation even if soil bank legislation fails to be passed. Sales of fertilizer were expected to begin increasing their tempo with the passing of uncertainties as to whether or not the farm bill would be vetoed.

American Potash & Chemical Corp. included with its 1956 annual sales meeting, a tour of the company's headquarters at Los Angeles and facilities at Vernon, Whittier and Trona, Cal.; Henderson, Nev., and San Antonio, Texas.

Swift and Co. announced that it would begin construction soon on a new complete liquid fertilizer near Hayward, Calif. When completed, it will make aqua ammonia, complete liquid mixed plant foods, ammonium phosphate solutions and other solutions.

Chemagro Corp., New York, announced that it had consolidated the agricultural chemical activities of Pittsburgh Coke & Chemical Co. and the Farbenfabriken Bayer A.G., Leverkusen, Germany. The move affected activities of these firms in both the U.S. and Canada.

Spencer Chemical Co., Kansas City, announced new facilities for production of aqua ammonia and concentrated nitric acid at the firm's Henderson, Ky. Works. The new facility was scheduled to begin production May 1.

Congress passed the farm bill, despite the fact that the administration had termed the measure "unacceptable" earlier. An opportunity was seen for the plant food industry to go ahead with sales, since the uncertainty of the terms of the new law was made clear.

The American Chemical Society held its spring meeting at Dallas, Texas, April 8-13, with much consideration being given to methods of determining pesticidal residues on foods. . . . The North Central Branch ofthe Entomological Society of America met at Purdue University March 28-30 and covered numerous insect problems as related to the middlewestern states. Special emphasis was placed on the use of soil insecticides.

Experts in the fertilizer field held differing views regarding the sales possibilities for the 1956 growing season. One group was described as being optimistic, the other much less so. Fear was expressed that the delay in passing farm legislation in Washington, would slow sales at the present time, only to create an unusually heavy demand later.

Davison Chemical Co., Division of W. R. Grace Co., Baltimore, announced the installation of new facilities at its Curtis Bay Works for production of granular fertilizer materials. The new unit cost $400,000. . . . Donald F. Starr was named by Trinidad Ryania Corp. as its representative in the U.S. His headquarters are at Upper Montclair, N.J.

The Bulletin Board

No. 18 in a series from the Spencer Chemical Magazine, "Today's Fertilizer Dealer"

Jack-of-all-trades, Louis "The Hustler" Houck makes them all pay off in his basic job—selling fertilizer. Here he's talking things over with his secretary and ace-salesman-without-title, Mrs. Jack Zimmerman.

"Houck, The Hustler," Gives Customers Super Service

By Ed Parker
Spencer Southeast Representative

About 3½ miles from Cameron, S.C., (population 700 or thereabouts) stands the business home of B. C. Houck & Son. Its proprietor, 25-year-old Louis Houck, is known as "The Hustler," because of his terrific energy. A farmer, cotton ginner, cotton buyer, seedsman, dairyman, credit manager and farm advisor, he makes all his interests contribute to selling fertilizer for B. C. Houck & Son.

In a fertilizer area that was competitive before many northerners could differentiate between 3-9-9 and bone meal, you always had to work for customers.

Louis took over the firm when his father, Mr. B. C. Houck, died in 1952. His goal is to give his customers a market for everything they produce—except potatoes and fresh vegetables, which are already handled in established state markets.

Today, with other produce, a farm customer need go no further than Houck's. The firm provides a modern cotton classing room, direct mill connection for cotton, modern seed cleaning, processing and storage plant, and in general a market for soybeans, small grains, pasture grass, clover seed, and corn.

Louis also operates three large tractor-trailer trucks, which take seed direct to mills from his storage bin. Two smaller trucks deliver most of the fertilizer to customers.

As a farmer, Louis is currently operating 681 acres in cotton, corn, small grains, and pastures, making himself one of his own best customers. He has 80 head of high-producing Holsteins chopping down his coastal Bermuda grass. He also has a small produce farm, specializing in okra and cantaloupes.

Last season, a poor year, his corn made 50 to 60 bushels, about triple the state average, and cotton produced more than a bale an acre.

His corn was treated to 500 pounds of 3-12-12 or 4-10-6, according to soil test, and side-dressed with 65 pounds of nitrogen in June. Cotton, fertilized with 800 pounds of 3-12-12 (and part of the acreage 4-10-6) and side-dressed with 24 to 35 pounds of nitrogen per acre, produced more than a bale an acre. Part of his success as a fertilizer dealer is due to the customer confidence he has won as a result of sound farming practices.

That "The Hustler's" energy has paid off is proved by the constant flock of trucks and cars in his front yard, and the steady humming sound around his order desk, presided over by Mrs. Jack Zimmerman, Louis' secretary and the firm's leading salesman-without-portfolio. Though not on Main Street, Houck's ginnery still pulls a lion's share of Cameron trade.

Spencer Supplies the Nitrogen

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Doing Business With

Oscar & Pat

When Oscar Schoenfeld came home from the farm supplies store one spring evening, he found that his faithful, hard working wife, Minnie, had sauerkraut on the table. A fresh gooseberry pie cooled nearby, and emitted delightful odors which caused him to sniff.

But Oscar's face became stern. "Minnie," he said, hanging his hat on the elk headed coat rack in the hall, "how is it you have sauerkraut and spareribs on Tuesday night? We are supposed to have baked beans and cabbage slaw tonight."

Minnie looked very nervous. She wrung her hands in her apron. "Oh, I thought you would like—"

"It isn't what we like," Oscar said severely. "We have to save on meat a couple of nights a week. I am afraid you are getting extravagant like Pat McGillicuddy. Money means nothing to him, except maybe something to throw away."

"Oh, I am sorry," Minnie said, brushing back a few wisps of black hair that had escaped the knot at the back of her head. "I won't do it again."

All through the meal Minnie hovered around Oscar, handing him this dish and that, asking him if he wanted more spareribs and sauerkraut, and even buttering bread for him. Finally Oscar lay down his fork and looked at his spouse rather severely.

"Minnie, what is the matter with you? Ach, you are jumping around like a chicken with its head cut off. Now come out and tell me about it."

Minnie sighed and some of the nervousness seemed to leave her. "It's about Uncle Emil. We got a letter this afternoon. He's coming to visit us Saturday."

Oscar straightened in his chair. His lips tightened. "He can't come. I won't have him. Ach, last year he stayed three months. And how he could eat."

"Oscar," pleaded Minnie. "But he worked so hard when he was here. Remember, those two trees that the storm blew down in our yard. He sawed all of them, split the wood and burned the brush. Someone else would have charged us $100 for that job, the way wages are."

"Huh," grunted Oscar, taking some more sauerkraut, "but then he would come down to the store all the time and lose money for us."

"Lose it?"

"Ach, he would sit there and tell stories how farmers never had to use so much fertilizer and insecticide years ago, and they got along all right. He said what was wrong with the country was that it was too speeded up—they should go back to the old days, when people didn't use so many new things. And me selling fertilizer. Ach, such a man."

"But he didn't mean to hurt your business," Minnie said. "He was only saying what he thought."

"And then," Oscar went on, cutting his spareribs. "I don't like him getting up so early in the morning—before me. Just because he was a lumberjack once up North he doesn't have to yell, 'Daylight in the swamp . . . the cook is sleeping,' around 5 a.m. It makes me mad."

"But, Oscar," Minnie counseled. "I am his only relative since Aunt Margaret died. I know he has quite a bit of money, and who else should he leave it to but me?"

"You said that eight years ago when he was 72," Oscar pointed out, "and he has been visiting us every spring since then. He always likes to trim trees for us and the neighbors. And then everytime he saws down even one little branch he yells 'timber' so loud you can hear him down at the store."

"But he loves to be busy," Minnie said, "and the neighbors love to have him trim trees for them."

"Well, I don't," Oscar said. "He will fall one of these days and break a leg or hip and then we will have to take care of him for a long time and pay doctor and hospital bills maybe."

"Maybe I can get him to quit climbing trees," Minnie said hopefully.

"And then another thing I don't like about him," Oscar said, "is that he always turns those cowboy programs on so loud. And just as I am reading my paper at night, Uncle Emil yells when the picture gets exciting and says 'shoot 'em cowboy . . . shoot 'em' . . . How can I read with such a noise?"

"And then," went on Oscar, "he chews Copenhagen snuff and if he thinks I'm not looking he will try to spit into the flower pots instead of going outdoors."

"Oh," Minnie said sadly, "is that why so many of my house plants have died?"

"Ach, it is," Oscar said. "I watch him, Minnie, I tell you. And he will not leave his money to you, either. Lots of times when you are in the kitchen and he looks at one of them cheesecake girl pictures in the paper, he winks at me and makes cracks about how many good looking widows and old maids live in this town. He—he may marry one of them."

"Oh," said Minnie in a shocked voice, "he wouldn't! Not at his age."

"Well," Oscar said dubiously, "that Uncle Emil would do anything. I can tell from the look in his eyes. He is not so old as his age."

Minnie was thoughtful for a few moments. Then she brightened. "Oscar," she said, "you know what a good gardener Unicle Emil is. While he was here last year, he slicked up our garden and made it the best one on the street."

"Y—yes, he did," Oscar admitted, "but he planted too many rutabagas. We got four bushels of them, and you kept feeding them to me all winter, till I got sick of them. They make me too gassy, Minnie."

"But," persisted his wife, "you and Pat are going to have that demonstration garden again, aren't you?"

"I think so," Oscar frowned.

"And didn't Pat say you had to help him keep it in condition, or hire someone to do your share?"

Oscar nodded. "Maybe Pat'll forget what he said."

"He won't," returned Minnie prophetically. "But I am sure Uncle Emil would be glad to do your share of the work on the garden in late May and early June, just when it needs a lot of hoeing."

Oscar brightened a little. "Maybe he would," he conceded grumpily. "Ach, he will have to sleep on the davenport again. I will not buy an other bed—then all my relatives will want to come and visit us, too. I like those one day visits which they make—so we don't have to put them up over night or maybe for two nights."

Average Farm Garden Can Produce $325 Worth of Vegetables

WASHINGTON — What is the average farm garden worth? Is it better to buy vegetables? Here's what extension officials say:

A plot of land, 100 by 220 ft., or about half an acre, will produce enough vegetables for a family of five. This is to assume that the soil is fertile, and well prepared. The average price of garden products for a family of five, if bought on the market would cost $325.

The 100 by 220 ft. garden will grow 72 three foot rows; or it will grow 62 three and one-half foot rows, running the short way. Hand labor required to work a half acre is estimated at 12 days. A garden tractor would reduce the time by half.

The same amount of garden products, if bought, would take the money from: two bales of cotton, one-third acre of tobacco, C grade milk from three cows, or A grade milk from two cows, 10 top hogs, four feeder calves and one year's return from 11 ewes

MANY SPRAYERS can be made *better-than-new* by replacement of a worn-out original pump with a husky, high-pressure, ball-bearing HYPRO pump designed specifically for farm sprayer service. A popular replacement pump is the model shown (No. N7500), made of long-wearing, corrosion-resistant Ni-Resist and capable of delivering up to 16 gpm (at 600 rpm) or developing pressures to 350 lbs. Other suitable models are available in either cast-iron or Ni-Resist and offer delivery maximums of 20 to 67 gpm, pressures up to 150 or 200 lbs. All are being used as standard equipment by an increasing number of sprayer manufacturers.

MORE FARM SPRAYERS USE HYPRO PUMPS THAN ANY OTHER KIND

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PESTICIDE SITUATION

(Continued from page 1)

duction figure any inventory nge taking place during the period subtracting exports if these are own.

"Unfortunately," the report states, xport data are often incomplete unavailable; those for DDT re-rted by the Bureau of the Census clude only preparations contain-g 25% or more of DDT, while no parate export figures are avail-le for 2,4-D and 2,4,5-T. In esti-ating disappearance of the aldrin-hlordane group (chlorinated hy-rocarbons) allowance has been ade for exports by the primary roducers but exports by formula-rs and trading firms are not nown. Estimates of requirements ve been revised on the basis of e latest statistics, trends over the st six years, and expected shifts usage for the 1956 season.

U.S. production of pesticides as orted by government collecting encies is shown in table 2 on page Output levels change according the capacity of domestic and for-n trade to absorb the manufac-ed materials. The general inven-y level indicated by the results of annual survey of carryover stocks ble 3) appears to be about aver-e. Indications of trends are based on reports of firms that supplied ures in both the 1954 and the 1955 rvey." Text of the report continues:

"Exports of pesticides in 1955 were orted by the Bureau of the Census have a value of $73,363,000, nearly ,000,000 greater than for 1954. exico received 15.2% and Canada 6% of the exports in 1955. Prepa-ions containing 25% or more of D made up 22% of the value of all S. exports of pesticides in 1955. ograms for the complete eradica-n of malaria in various foreign eas will require that large ship-nts of insecticides from the United ates be continued at least for the xt few years.

"Compared with other chemical aterials used principally by agri-ultural growers, pesticide formula-ions as purchased by the consumer mount to only about one-thirtieth f the total tonnage of farm chemi-als.

"An estimated breakdown of gricultural chemical consumption or 1954 is as follows: fertilizers, 3,000,000 tons; liming materials, 9,000,000 tons; pesticides, formu-ated, 1,500,000 tons; and miscel-aneous (feed supplements, etc.), ,000,000 tons; total, 44,500,000 ons.

"The survival rate of hibernating oll weevils in the cotton belt is gen-rally high this season, according to ate and federal surveys. In North arolina, South Carolina, Georgia and ouisiana, the weevils are present is spring in numbers at least double ose a year ago. Many more weevils ere turned up in woods trash in orth Carolina than last spring but ill well under the average of 2,422 er acre for the past seven years. In lorence County, South Carolina, sur-eys revealed 4,646 weevils per acre, ore than twice the number found in e spring of 1955, while smaller sam-lings in six other South Carolina ounties turned up 5,000 per acre, even times as many as a year ago.

"The state average of surviving eevils in Georgia per acre of surface rash was eight times the number ound last spring. In Mississippi, ten r more counties averaged from 1,000 o 2,000 weevils per acre. In Madison arish, Louisiana, surveys showed the ecord-breaking average of 3,654 wee-ils per acre, 1.8 times as many as a ear ago, and 4.3 times the 20-year verage; in five other Louisiana par-hes 3.6 times as many weevils were ound present as last spring. If eather conditions in June and July are favorable for the development of weevil populations, large quantities of cotton insecticides are likely to be required in 1956.

"Approximately 2,275,000 acres of timberland were sprayed from the air in 1955 by the U.S. Forest Service in cooperative projects. Most of this acreage was in Montana, New Mexico, Idaho, Washington and Oregon for spruce budworm control, using DDT at one pound per acre. In addition, 450,000 trees were sprayed individually to control bark beetles. It is expected that in 1956 about 1,200,000 acres of western timber infested with spruce budworm will be aerially sprayed with DDT. Ground spraying against bark beetles will be unimportant in 1956.

"It is expected that an accelerated program to eliminate the gypsy moth in the northeastern United States will be initiated in 1956. This would involve about 1,000,000 acres to be sprayed with DDT during May and June.

"To control grasshoppers in 1955 over 1,600,000 acres of range land in eleven States were sprayed with insecticides by airplane in State-Federal cooperative programs. More than 95,000 acres in six States were baited against the mormon cricket. Late summer and fall surveys in 1955 indicated the grasshopper threat in range lands of the Southwest to be more widespread and severe than at any time in recent years. Moreover, grasshoppers appear generally more threatening to crop areas in 1956 than in 1955.

"Surveys of fall populations of

Table 3—Manufacturers Stocks of Pesticides

(In thousand pounds)

Materials	Stocks on hand Sept. 30, 1955	Per cent of 1955 stocks reported as formulations	Per cent that Sept. 30, 1955, stocks are of stocks on Sept. 30, 1954	Sept. 30, 1953
BHC, including lindane (gamma basis)	3,900	52.9	60	68
Calcium arsenate	1,625	17.7	24	15
DDT	29,250	50.0	101	94
2,4-D (acid basis)	10,000	54.7	122	120
Lead arsenate	6,900	19.1	109	106
Sulfur, ground	36,000	47.3	112	88
2,4,5-T (acid basis)	*2,000	58.3	89	78
Aldrin, chlordane, dieldrin, heptachlor, toxaphene†	16,400	50.2	96	61
Captan, chloro-IPC, DDD, dithiocarbamates, malathion, methoxychlor, parathion, sodium TCA†	20,800	47.6	178	169
All materials‡	153,700	47.6	98	83

*Estimated. †Figures for materials produced principally by less than three firms are not given individually. ‡Included are a number of chemicals not named above. Source: Survey by U.S. Department of Agriculture in cooperation with the National Agricultural Chemicals Assn.

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European corn borer larvae in 1955 showed most of the heaviest infested counties in the Midwest to be in the northern half of Illinois and the eastern two-thirds of Iowa. However, the insect was not so serious a pest in 1955 as during the previous season.

"The armyworm was not of widespread importance in 1955 compared to 1953 and 1954 when it occurred in epidemic numbers over large areas in the Midwest.

"Last year populations of the spotted alfalfa aphid were heavier, primarily in the Southwest from Oklahoma to California. This insect is likely to be present again in 1956 in damaging numbers over a large area in this region.

"Aerial treatments with pesticides and defoliants in the United States, according to the annual survey of industrial and agricultural aviation activities by the Civil Aeronautics Administration, were made on fewer acres (31,063,000) in 1954 than in 1953 when the treated acreage was reported to be 33,922,000. The total material applied dry in 1954 amounted to 234,056,000 lb., and liquids 90,706,000 gal. diluted spray materials. The hours flown in these activities were 541,006 in 1954, compared to 591,491 in 1953. Figures for 1955 are not yet available.

"Of the total acreage (7,172,000 acres) treated in California in 1954, 56% was by aircraft. Somewhat less than half (46%) of the acreage treated from the air was dusted. Of the acreage treated with ground equipment, 83% received liquid sprays.

"According to the South Dakota Department of Agriculture, 238,733 acres were treated with pesticides from the air in 1954. A preliminary report from the Oklahoma State Board of Agriculture for 1955 shows the aerially treated area there to have been 433,514 acres. Data from the Mississippi Aeronautics Commission indicate a huge increase in aerial dusting and spraying in that State for 1955 over 1954, largely because of the cotton insect situation last season (table 4).

"Information regarding acreage treated from the air and quantities of materials used is not available from most States, although more states having airplane applicator laws are likely soon to require the logging of airplane applications.

"Granular insecticides have emerged as a new development with promising advantages particularly in ease of application and increased efficiency. Formulation of fertilizer-insecticide mixtures is more efficient with granulated pesticides. Insecticides used in such mixtures are the chlorinated hydrocarbons effective in the control of many soil and turf insects. These mixtures are recommended in about 26 States. In 1954 over half the mixtures consumed in the United States were applied to corn. Total use has been estimated at 90,000 tons for 1953, 150,000 tons for 1954, and 200,000 tons for 1955. A considerable further increase is expected in 1956.

"Supplies of insecticides and fungicides distributed by 23 major regional farm supply cooperatives during the fiscal year 1953 had a value of $10,177,000. This amount increased 17.4% to $11,950,000 in 1954. For the same years fertilizer sales increased 5.7%.

"Records of sales of pesticides by Canadian registrants provide comparative data not gathered in this form in the United States (table 5). Agricultural dusts and sprays together with herbicides made up 62.3% of total sales of pesticides in 1954, livestock and poultry treatments 14.2%, household and industrial insecticides 21.7%, and rodenticides 1.8%. Total Canadian sales in 1954 amounted to $19,457,000. U.S. exports to Canada that year had a value of $7,777,000.

"Recent production and export statistics for DDT are shown by calendar year in table 6. Production in the crop year Oct. 1, 1954 through Sept. 30, 1955 was 110,550,000 lb. compared to 90,712,000 lb. for the previous 12 month period. In the five months October 1955, through February 1956, a further 53,909,000 lb. were produced.

"Exports of DDT during the 1954-55 crop year were 50,968,000 lb., compared to 42,743,000 lb. in the previous corresponding period. Shipments abroad, therefore, were much greater than ever before, largely the result of extensive foreign assistance projects.

"Actual consumption in the United States appears to have been from 55 to 60 million lb. in 1954-55. This is higher than in any year since 1951, indicating that along with the high export rate DDT holds a strong position in the domestic pesticide picture.

"Production of benzene hexachloride (gamma basis) in 1955 was nearly 12% under that for 1954. However, consumption in the 1954-55 season was fairly high,—probably well above 1953-54,—carryover stocks being reduced considerably during the period. BHC experienced rather heavy demand for use on cotton during the weevil season. Inventories of BHC are comprised largely of low gamma (12-15%) and 36-46% material (table 7). In the five months October, 1955 through February, 1956, production of BHC amounted to 24,058,000 lb. having a gamma content of 4,372,000 lb.

"Overall production of the chlorinated hydrocarbon group (aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene) was 50% higher in 1954-55 than in the previous

Table 4—Airplane dusting and spraying in Mississippi

Year	Form applied	Acres treated	Amount applied
1953	Dust	1,302,801	18,090,820 lb.
	Spray	364,256	682,567 gal.
1954	Dust	788,259	12,059,882 lb.
	Spray	474,487	3,295,895 gal.
1955*	Dust	2,453,036	48,239,528 lb.
	Spray	2,851,922	19,775,370 gal.

*Estimated. Source: Mississippi Aeronautics Commission.

Table 5—Sales of pesticides reported by Canadian registrants

Type of pesticide	1951	1952	1953	19
	($1,000)			
Agricultural dusts and sprays	4,501	5,204	6,327	7,3
Livestock and poultry treatments	1,182	1,257	1,587	2,7
Herbicides*	6,926	6,247	5,198	4,7
Household and industrial insecticides	2,872	3,033	3,795	4,2
Rodenticides	319	459	314	3
Total	15,800	16,200	17,221	19,4

*2,4-D, 2,4,5-T, and MCP included on acid equivalent basis. Source: Dominion Bureau of Statistics, Ottawa.

Table 6—DDT production and exports

Calendar year	Production (1,000 lb.)	Exports: Quantity (1,000 lb.)	Exports: Value ($1,000)	Proportion of production %
1951	106,139	....	14,752	...
1952	99,929	32,288	15,731	32.3
1953	84,366	31,410	10,518	37.2
1954	97,198	42,329	13,438	43.6
1955*	125,134	53,252	16,184	42.6

*Preliminary. Source: U.S. Tariff Commission, U.S. Bureau of the Census.

Table 7 — Percentage breakdown of manufacturers' inventories of benzene hexachloride, Sept. 30, 1955

Grade	Gross basis	Gamma basis
12-15% gamma	76.0	45.6
36-46% gamma	19.5	39.7
99% gamma (lindane)	2.4	12.1
Other grades	2.1	2.6

KILL THE CORN BORER— NOT THE CORN!

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Kill those corn borers where they feed —get them in the early stages, but get them without danger of burn to the plant. Use Riverdale's Solvent-Free 5% DDT Granules. Can be applied with either ground equipment or airplane. No mixing, no water to haul, just dump them into the hopper.

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Riverdale also manufactures DDT in emulsion form for spray application.

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Table 8—Sales of ryania and cryolite in Louisiana

	1953 (lb.)	1954 (lb.)	1955 (lb.)
Ryania, 40%	1,456,650	2,386,650	574,150
Cryolite	1,884,295	39,116	191,295

Source: Louisiana Agricultural Extension Service.

Table 9—Copper sulfate shipments for specified uses

Use	1955 1,000 lb.	Average, 1953-55 1,000 lb.
Agricultural	36,288	37,078
Industrial	43,080	39,218
Other (chiefly export)	78,856	68,896
Total	158,224	145,192

Source: U.S. Bureau of Mines.

crop year. This was due chiefly to heavy demand for cotton insecticides and to expanding soil and field crop applications as well as shipments abroad. U.S. disappearance of these materials in 1953-54 was approximately 35 million pounds and rose to about 57 million in 1954-55.

"Lead arsenate production and inventories remained about the same in 1954-55 as in the previous year. In view of a considerable reduction in calcium arsenate stocks in the past season, domestic consumption of this insecticide apparently rose to about 500,000 lb. from less than one-half that amount in 1953-54.

"Pyrethrum usage in the United States amounts to about 100,000 lb. pyrethrins or two-thirds of world consumption. This figure is expected to rise by 1960, owing largely to the impact of the Miller Bill. Imports during the 1954-55 crop year comprised 5,120,000 lb. flowers (including a small quantity of powder) and 153,000 lb. extract. The trend in Africa is toward greatly increased extraction facilities because of lower shipping costs and greater stability. The first large shipment of extract from Kenya was in late 1953.

"An extraction plant was reported to have gone into production in the Belgian Congo in 1955. One ton of average Kenya flowers provides 120 lb. extract.

"Recently for the second time 20% pyrethrum extract (approximately 5,000 lb.) was released from the national stockpile; it is to be available for disposition on or after September 17, 1956. Last year 60,000 lb. were released.

"East African deliveries of pyrethrum (basis of unextracted flowers) to the world market amounted to 2,319 long tons in 1953, 2,500 tons in 1954, and an estimated 3,320 tons in 1955, with a still larger quantity expected to be shipped in 1956.

"Rotenone imports, on the basis of crude and powdered roots, were 7% lower in 1954-55 than the previous year, although much higher than any other year since 1951. Over 99% of all imports were South American cube and of these 49.7% were powdered root, compared with 40.7% powdered in 1953-54. Rotenone imports during the fourth quarter of 1955 amounted to 1,425,000 lb.

"Sales of ryania in Louisiana for sugarcane borer control were down and of cryolite up somewhat in 1955 over the preceding year (table 8)."

Fungicides

As for fungicides, the report states that copper sulfate production rose appreciably in 1955 but was still well below average. "In fact, production in the years 1953 to 1955 was lower than any year since 1940. However, exports in 1955 were higher than the 10-year average 1946-55. Shipments to agriculture have remained rather uniform for three years, rising in 1955 only three percent over 1954 (table 9).

"Zinc sulfate is used in agriculture largely to correct zinc deficiency in soils, as in Florida and the Pacific Northwest, and in conjunction with maneb fungicides. Utilized chiefly as the monohydrate containing 36% zinc, producers generally are discontinuing less concentrated forms for agricultural sale. Shipments to agriculture have increased in recent years (table 10)."

Synthetic organic fungicides have a large share of the market for materials to control plant diseases, the USDA report says. Plant expansions in recent years have provided ample capacity to meet the growing demand.

"The consumption of pentachlorophenol by the wood-preserving industry increased from 5,398,000 lb. in 1953 to 8,341,000 lb. in 1954, according to figures obtained by the U.S. Forest Service. On the other hand, the use of distillate coal tar creosote decreased 16%. Creosote, however, is still the most widely-used preservative considering total volume of material treated; in 1954 about 85 percent of all material treated was with creosote or a creosote solution. Over 149 million gallons of creosote were used in this industry in 1954."

Herbicides

The report also includes figures on weed killers, which it says have been applied to an increasingly greater area of agricultural land each year for several years. "Minnesota has a typical range of weed growth and its weed control activities are rather indicative of herbicide consumption over the rest of the country. The quantity of soil sterilizing compounds, chiefly chlorate-boron mixtures, used in the State was off 7.2% from 1954 but still 5.6% higher than in 1953. The percentage of grain acreage sprayed rose from 22.6% in 1954 to 28.6% in 1955. The mileage of roadsides, ditches, and rights-of-way of railroads, telephone lines and power lines sprayed with chemicals increased 6.5% from 54,653 in 1954 to 58,199 in 1955.

"Large quantities are used to control weed infestations along railroads, highways, power lines and similar facilities, as well as around industrial installations. It has been reported that 40,000 tons of formulated herbicides were applied along highways in 1954. Materials recently developed are being employed for special purposes. The use of pre-emergence herbicides, applied before the crop pushes through the soil surface, is increasing on corn, cotton and certain other crops.

"In table 11 acreage figures are given for weed control in recent years in South Dakota. A large proportion

Table 10—Zinc Sulfate Shipments to Agriculture

Year	Agriculture Gross weight	Agriculture Dry basis	Total Gross weight	Total Dry basis	Proportion to agriculture, dry basis %
	short tons				
1950	5,841	4,880	23,912	18,041	27
1951	5,588	4,847	23,524	18,674	26
1952	5,111	4,446	19,587	16,122	28
1953	6,773	5,894	22,220	18,412	32
1954	7,067	6,139	19,027	16,157	38

Source: U.S. Bureau of Mines.

HOW UNION BAG BUILDS MORE BUSINESS FOR THE FERTILIZER INDUSTRY

"For 10 years I've bought fertilizer only in Multiwalls"

Raymond Rossback, farmer, Davidsonville, Maryland.

"See how correct fertilizing pays off?" says Mr. Rossback. "This is Southern Maryland cigarette tobacco, Type 32, of fine texture and quality. I fertilize heavily to grow it, from 1,000 to 1,500 lbs. per acre. I use 80-lb. Multiwalls, hand-pouring the fertilizer into the spreader machine, then out to the fields. That's the easiest and most practical way to do the job."

Union Bag information program promotes fertilizer

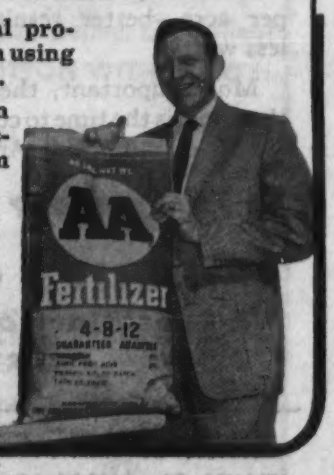
Mr. Rossback took over his property in 1911, when it was practically a wilderness. Neighbors said, "You won't last long." They were wrong; good management and the proper use of fertilizer, plus hard work, won out. To help farmers like Mr. Rossback, Union Bag stresses those themes in a countrywide educational program.

Union's information program helps build sound and expanding farm markets for fertilizer distributors. Union's Multiwalls, used by top fertilizer companies, lighten farm chores and create satisfied farm customers. The strong, attractive Multiwall pictured below was designed and made by Union for The American Agricultural Chemical Company.

"Union Bag's educational program should aid farmers in using fertilizer more efficiently. Union Multiwalls have an excellent performance record with us. We use them in quantity."

Mr. John A. Layton, Superintendent, Baltimore Plant, American Agricultural Chemical Company, Baltimore 24, Maryland.

The American Agricultural Chemical Company is one of the country's leading fertilizer manufacturers, distributing AGRICO, AA Fertilizers and 18% Normal Superphosphate.



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THE LOW COST FERTILIZER
Lower production costs per unit always demand good farming plus proper fertilizing. Phillips 66 Ammonium Nitrate is the right nitrogen fertilizer to use with quality mixed fertilizer. Use this high nitrogen fertilizer, Phillips 66 Ammonium Nitrate, and you'll realize lower unit production costs . . . more profit per acre! You make more money with less work, less worry
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NOW AVAILABLE IN POLYETHYLENE-LINED 80 AND 100 LB. BAGS
See Your Fertilizer Dealer Today!
PHILLIPS CHEMICAL COMPANY
A Subsidiary of Phillips Petroleum Company, Bartlesville, Oklahoma
It's Performance That Counts!
NITROGEN 33.5%

Here's the kind of advertising Phillips is using to help you sell more Ammonium Nitrate and other fertilizers in 1956. A forceful series of ads featuring Phillips *66* Ammonium Nitrate appears in 21 leading farm magazines. They tell farmers how this high quality, high nitrogen fertilizer gives them lower unit production costs—more profits per acre—better results with less work, less worry.

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A companion high nitrogen fertilizer for mixed fertilizers. Now available in 80 and 100 lb. bags.

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Table 11—Weed control program in South Dakota

Year	By airplane, acres: Wheat	By airplane, acres: All	By ground equipment, acres	Total acreage
1952	149,401	190,589	32,902	223,491
1953	168,911	222,598	19,634	242,232
1954	108,364	219,554	21,108	240,662

Source: South Dakota Department of Agriculture.

of the area treated is grain fields sprayed from the air.

"Exports of weed killers amounted to 14,829,000 lb. valued at $5,315,000 in 1954, and 15,799,000 lb. worth $6,032,000 in 1955. Based on dollar value, Canada received 42% of these shipments in 1954 and 33% in 1955.

"Consumption of 2,4-D in the United States rose appreciably during the 1955 season. Production of the acid for the calendar year was up 13% over 1954. A breakdown of the production of 2,4-D salts and esters for 1955 is not yet available. The proportion of esters dropped, however, from 80% to 75% of the total weight of these two classes of derivatives, according to data published by the U.S. Tariff Commission. It should be noted that the production of 2,4-D esters and salts and that of 2,4-D acid cannot be added together; the former figure serves chiefly to indicate the relative quantities of 2,4-D derivatives made from the acid.

"Sodium chlorate is employed for weed control and as a defoliant. Estimates of consumption for these purposes are somewhat confusing, but the following picture appears to be reasonably accurate.

"Producers reported 30,000,000 lb. were shipped for herbicidal use and 3,500,000 lb. for defoliation in 1950. A recent survey by the Department of Commerce showed these uses amounted in 1954 to about 29,000,000 lb. and 4,750,000 lb. respectively. Consumption appears to have been higher in 1952 and 1953. A leading producer estimated that 47% of production was used in weed control and seven percent for defoliation in 1952, or 38,000,000 lb. and 5,700,000 lb. respectively. It has been stated that 13,000,000 lb. of the sodium chlorate for herticidal use in 1952 was applied to railroad rights-of-way.

Defoliants

"Although some defoliation of potatoes, soybeans and a few other crops has been practiced, cotton is by far the principal one to which these chemicals are applied (table 12). In considerable usage in recent years

Table 2—Pesticide Production by Calendar Years

Chemical	1952	1953	1954	1955 1/
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Benzene hexachloride 2/ (gross)	85,090	57,363	76,934	54,995
Benzene hexachloride 2/ (gamma equivalent)	12,800	8,800	11,500	10,161
Calcium arsenate	7,634	7,260	2,758	4,232
Copper naphtheante	13,680	3,268	3,557	4/
Copper sulfate	189,072	145,888	130,616	156,176
2,4-D acid	30,718	25,928	30,184	34,070
2,4-D acid esters	21,108	18,826	16,994)	28,235
2,4-D acid salts 3/	3,933	4,836	5,642)	
DDT	99,929	84,366	97,198	125,134
Lead arsenate	14,286	14,196	15,620	14,776
Methyl bromide	4,620	6,167	4/	4/
Parathion	2,365	2,999	3,389	4/
Phenothiazine	5,914	3,700	3,437	4/
Sodium chlorate	80,868	86,442	75,644	93,226
2,4,5-T acid	3,490	5,281	2,697	2,887
2,4,5-T derivatives	3,138	5,386	3,883	4/
Tetraethyl pyrophosphate (40% basis)	922	229	361	507
Ziram	934	1,152	1,117	4/
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined production)	49,000	29,000	45,169	68,000

1/ Preliminary.
2/ Not including lindane.
3/ Sodium and amine salts.
4/ Either not yet available or cannot be disclosed.

Sources: U. S. Tariff Commission; U. S. Bureau of the Census; U. S. Bureau of Mines.

Table 12—Cotton Treated with Harvest-Aid Chemicals, 1955

Area	Acres treated: Defoliated: Dusted	Defoliated: Sprayed	Desiccated	Bottom defoliated	Total treated	Per cent of total cotton acreage
Southeast*	259,500	7,100	425	500	267,525	8.8
Mid-South†	818,000	326,000	16,900	5,000	1,165,900	24.8
Texas-Oklahoma	220,000	435,000	415,000	500	1,070,500	14.4
Far-West	1,200	440,848	12,000	11,000	465,048	36.9
Total	1,298,700	1,208,948	444,325	17,000	2,968,973	18.0
Per cent of total treated	43.7	40.7	15.0	0.6	18.0	...

*Includes North Carolina, South Carolina, Georgia, Alabama. †Includes Mississippi, Louisiana, Tennessee, Arkansas, Missouri. Source: Report of Defoliation Conference, W. H. Tharp, chairman, March 13, 1956.

Table 13—Specified Solid Diluent Materials[1]

(In thousand pounds)

Year	Talc & soapstone	Pyrophyllite	Fuller's earth	Kaolin	Bentonite
1952	104,560	70,162	152,232	57,890	8,146
1953	115,524	69,730	151,390	63,620	9,242
1954	96,634	81,950	142,488	57,938	5,162

[1]Figures for 1955 not yet available; corrected figures given for talc and soapstone. Source: U.S. Bureau of Mines.

ave been calcium cyanamide, amino riazole, "Endothal," sodium chlorate-orate mixtures, magnesium chlorate, odium ethyl xanthate, and penta-hlorophenol.

"Defoliation of cotton improves the efficiency of machine harvesting and aids hand pickers. Somewhat over 20,000 spindle pickers were used in the United States in 1955. Roughly one-fourth of the U.S. cotton crop is harvested mechanically, by either spindle picking or mechanical stripping. Substantially better than half is harvested thus in California and Arizona, about a third in Louisiana, and a considerably smaller proportion in other states.

Fumigants

"Grain fumigant consumption has ndergone a steady growth in recent ears in view of the Federal program o enforce cleanliness in interstate hipments of grain. Large quantities f methyl bromide have been applied o stored rice. Grain protectant usage as increased also, with a shift from usts to liquid sprays.

"Soil fumigants are of much inter-st for nematode control. North Caro-na is said to consume over half of ll soil fumigants used in the United tates. About one-third (231,000 cres) of the tobacco crop in the tate was fumigated in 1955 for ematode control. Only 800 acres ere so treated in 1949.

Dust Carriers and Diluents

"The pesticide industry consumes bout 30% of the U.S. output of pyro-hyllite, 18% of the fuller's earth, 1% of the talc and less than two ercent of the kaolin (china clay) table 13)."

GRAIN PROTECTION

(Continued from page 1)

t will handle and supervise the praying of the corn as it is moved nto the bin storage. Sites will be elected in several states to give the CCC a good broad testing ground to over all types of storage conditions t may encounter.

The decision of CCC to undertake this experiment came as the result of information and persuasion by officials of the agricultural marketing service and state technicians who have experimented widely with this product as dust, in spraying for protection, and as a repellent. CCC officials said also that evidence sustaining claims for the effectiveness of this product has been developed by specialists at the USDA experiment station at Beltsville, Md.

CCC officials have expressed high nope that this project may point the way to effective protection against the Angoumois grain moth in storage bins but it is primarily aimed at weevil and beetle infestation which s more common in many states.

Quarantine Against Medfly Set for Two Florida Counties

WASHINGTON — Effective May 6, southern Florida counties of Broward and Dade were regulated nder a Mediterranean fruit fly quar-ntine.

Fruits and vegetables, and other arden and orchard products of all inds, all types of soil, and other roducts and articles likely to har-or this pest of fruits and vegeta-les, moving interstate from the reg-lated counties, in general require ertification based on treatment, in-pection or nonexposure to infesta-on.

Although the entire state of Florida included within the Mediterranean uit fly quarantined area, only the ounties actually found to be in-ted or immediately threatened by e pest are regulated.

PHOSPHORUS REPORT

(Continued from page 1)

total of 12 plants producing phosphorus and that these same eight firms also manufacture phosphoric acid at 19 plants.

Twenty companies were operating 25 wet-process plants in 1955. Fourteen of these plants have coexisting triple superphosphate facilities and four others are essentially fertilizer establishments also, using the acid to produce ammonium phosphates, primarily. The 25 wet-process plants in 1955 compare with 13 in 1951.

Production of acid from phosphorus in 1955 totaled 568,106 tons P_2O_5, a gain of 93% from the 1950 output, while production of wet-process acid was 780,721 tons P_2O_5, an increase of 162% from 1950.

The proportion of total phosphoric acid accounted for by the wet-process acid has advanced from about 50% in 1950 to 58% in 1955, the report states.

In 1955 the acid from phosphorus was produced at about 73% and wet-process acid at about 79% of capacity.

The fertilizer industry accounted for 79% in 1954 and 81% in 1955 of the output of wet-process acid.

By comparison, fertilizer use of acid from phosphorus amounted to 15% and 12%, respectively, for the same years. The proportion of this type of acid used for fertilizer is significantly less than the indicated use of phosphorus, the report points out. This difference can be attributed to use by TVA of substantial quantities of phosphorus in calcium metaphosphate, which does not involve the intermediate production of phosphoric acid.

Fifty two per cent of the combined phosphoric acids were used in fertilizers in 1955, compared with 50% in 1954.

Phosphorus production, which has shown a constant increase since 1951, totaled 287,308 tons in 1955, according to producers' estimates made last October. However, during the last quarter of 1955 output was running at the annual rate of 306,000 tons, or 96% of capacity.

With soaps, detergents and sanitizers, the largest users of phosphorus accounting for 44% of total distribution in 1955, fertilizers were second in consumption with 44,150 tons, or 15.8% of the total.

The fertilizer use is largely accounted for by TVA production of concentrated superphosphate, calcium metaphosphate and other phosphatic materials, the report states.

The proportion of total phosphorus distributed for fertilizer declined from 17.3% (45,512 tons) in 1954 to 15.8% (44,150 tons) in 1955, with the decrease primarily a result of a cutback in TVA use of phosphorus for fertilizers. Distribution reported by private producers for fertilizer use increased from 17,000 tons in 1954 to 21,860 tons in 1955, or from 6.5% to 7.8% of the total.

Inorganic Chemical Production Shows Increase in March

WASHINGTON — Production of synthetic anhydrous ammonia during March totaled 313,048 short tons, a 9% gain from output of 286,743 tons in February, according to the Bureau of the Census, U.S. Department of Commerce.

March production of original solution ammonium nitrate (100% NH_4NO_3) was 228,057 tons, up 12% from 202,951 tons in February. Nitric acid (100% HNO_3) production totaled 231,405 tons in March, a gain of 9% from 211,530 tons in February, while output of phosphoric acid (50% H_3PO_4) was up 6%, from 313,691 tons in February to 331,582 tons in March.

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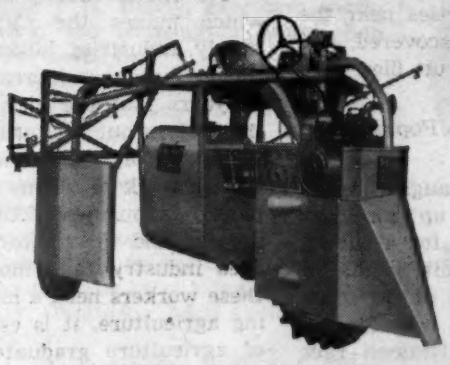

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Southern states.

Mediterranean Fruit Fly Discovery Brings Action

While agriculturists in Florida keep their fingers crossed and hope and pray that the recent infestation of Mediterranean fruit fly in their state may be controlled, it is interesting to recount the story of how a chance discovery of the insect started in motion a tremendous activity that was to be heard even in the halls of Congress.

H. A. Denmark, Florida entomologist, writes in his weekly report that the Mediterranean fruit fly was first found on April 13, when a Miami man found larvae in grapefruit he was preparing to eat. Apparently surprised at such a find, the man called a local newspaper which referred him to Douglas M. Knapp, Dade county agent. Mr. Knapp, in turn, carried the larvae to Dr. D. O. Wolfenbarger, entomologist at the Sub-Tropical Experiment Station at Homestead, who recognized the possibility that these larvae might be those of the "Medfly."

C. E. Shepard, regional inspector for the state plant board, was contacted, and one of the larvae was forwarded to the entomological department at Gainesville, while two other larvae went to Dr. W. L. Popham, director of the crops regulatory program, Agricultural Research Service, USDA, in Washington, D.C. At the same time a tentative determination of the pest was established by the state plant board and by Dr. R. H. Foote, Federal fruit fly identification specialist for the bureau.

On April 18, the plant commissioner directed Mr. Denmark to go to the infested area in Miami to collect adults of the species in traps. Three sweet bait traps were set on properties near the place where the first larvae were discovered, and in a couple of days, some 13 adult fruit flies were caught.

Specimens were forwarded to Dr. Popham and identification confirmed.

Subsequently, more flies were caught in the original three traps and in others set up in a wider area. By April 24, plans were made for a survey and broad-scale trapping for the fruit fly, and a headquarters was set up at the office of the county agent. Spraying and picking crews were located at strategic points, including the Hialeah race track.

By the end of the month, a meeting had been held to discuss plans for eradication of the fruit fly. Present were high level state officials, including LeRoy Collins, Governor of the state; Fred H. Kent, chairman of the Florida Plant Board and a galaxy of state inspectors, entomologists and others interested in helping to rid the area of this serious fruit fly pest.

By the first of May, some 89 infestations had been positively determined as Mediterranean fruit fly, and the infestation extended as far north as Hollywood in Broward county.

Subsequent developments have been reported in Croplife, with Spessard Holland, U.S. Senator from Florida stating that he expected to ask for an appropriation from Congress to cope with the threatening situation in his state.

Meanwhile, quarantine provisions are helping to prevent further spread of this dangerous pest to other areas of Florida, while the rest of the country looks on with great interest.

Training for Careers in Agricultural Trades

Researchers at the Davis campus of the University of California are trying to discover if companies serving farmers are able to find employees, with the kind and amount of training they should have. This strikes us as an exceptionally valuable project. It will be highly interesting to study the findings. Perhaps similar activities are being carried on in other states, although we haven't heard of them. If they are not, we would suggest that they be encouraged by industry groups who need capable help with agricultural background.

The California idea is to explore manpower resources and training program possibilities below the college level. Such exploration would be designed to greatly augment the supply of qualified personnel for various jobs where college training is not essential.

Sidney S. Sutherland, chairman of the Department of Education at the Davis campus, and Orville E. Thompson, instructor in education, are trying to find out what high school students want and what agricultural industries want, so that schools can make any course changes that may be desirable.

They are finding out just what kinds of positions are available, the numbers of positions involved, and what training is needed for these positions.

The researchers are asking managers and personnel directors where they usually get employees, how they feel about cooperating with high schools in training possible employees, and what specific courses should be a part of business education.

If they find that very many of these positions can be filled with less training than a college degree, a suitable training program for secondary schools will be developed.

No one is exactly sure what the situation is, which makes the California survey especially timely. Industries, businesses and agencies serving the farmer have increased so rapidly in the last 20 years that the high schools and colleges find themselves out of touch with today's needs. It is estimated that six out of 10 agricultural workers do not work on farms and ranches, but are employed in businesses that serve farmers or that process and distribute farm products. Not only does industry take more workers, but more of these workers need a higher education. Non-farming agriculture, it is estimated, needs six college of agriculture graduates for each graduate required by farming or ranching.

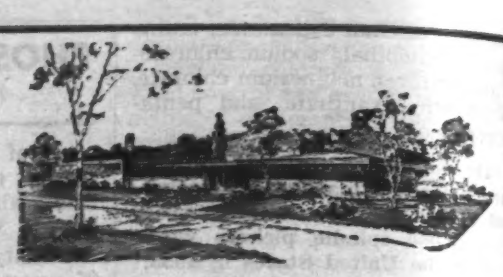
How do these figures match the plans of students taking vocational agriculture in high school?

A survey among 11,000 high school students, made in 1954 by Sutherland and Thompson in California, brought out that only about one-third of high school students in vocational agriculture live on farms. About half are getting some farm experience, and about half have definite plans to farm. Not all of these, however, will have an opportunity to farm at home after graduation.

Prof. Sutherland feels that it is logical to assume that the others will turn to agricultural occupations closely related to farming—either right out of high school or after two or four years of college.

But, he adds, high school courses in vocational agriculture are not designed to prepare students for agricultural careers other than farming. The need is to find out just how different the training needs of agricultural servicing and processing industries are from the needs of farming. It is conceivable that a cooperative educational program between agricultural and business education may be one of the answers. Such a program might well make use of on-the-job training methods.

An industry program based on the California idea not only would generate and keep alive the interest at the proper levels, but it would result in making good help available for jobs other than those requiring college training.



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MEETING MEMOS

May 25—Fertilizer Section, Virginia Safety Association, Roanoke Hotel, Roanoke, Va.; W. C. Richardson, Southern States Cooperative, Richmond, program chairman.

June 5-6—North Central Division, American Phytopathological Society, Kansas State College, Manhattan, Kansas.

June 5-7 — Annual Fertilizer Tours and Conferences, sponsored by the Alabama Agricultural Experiment Station, in cooperation with the Alabama Soil Fertility Society; June 5, Crossville and Alexandria; June 6, Auburn; June 7, Headland.

June 10-13—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.

June 20-22—Northeast Branch, American Society of Agronomy, Summer Meeting, University of Maryland, College Park, Md.

June 26-28, Pacific Branch, Entomological Society of America, Hotel Claremont, Berkeley, Cal.

June 28-30—Association of Southern Feed & Fertilizer Control Officials, 14th Annual Convention, Hotel Roanoke, Roanoke, Va.; Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., secretary-treasurer.

June 28-30—Seventh Regional Fertilizer Conference of the Pacific Northwest, Chinook Hotel, Yakima, Wash.

June 30—Del-Mar-Va Peninsula Fertilizer Assn., 35th Annual Convention, Hotel George Washington, Ocean City, Md., F. N. Strudwick, P.O. Box 199, Salisbury, Md., Secretary.

July 12—South Carolina Fertilizer Meeting, Tour of Edisto Experiment Station, Blackville, S.C.

July 19-20—Southwestern Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 25-27—Northwest Association of Horticulturists, Entomologists and Plant Pathologists Conference, Northwest Washington Experiment Station, Mount Vernon, Wash.

Aug. 1—Kentucky Fertilizer Conference, Guignol Theatre, University of Kentucky, Lexington, Ky.

Aug. 14-15—Ohio Pesticide Institute, Summer Meeting, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Wooster, Ohio, Secretary.

Aug. 17-25—Tenth International Congress of Entomology, McGill University and University of Montreal, Montreal, Canada, J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ontario, Canada, Congress Secretary.

Aug. 22-24—Beltwide Cotton Mechanization Conference, Atlanta Biltmore, Atlanta, Ga., sponsored by National Cotton Council.

Aug. 30—South Carolina Plant Food Educational Society, Clemson House, Clemson, S.C.

Oct. 15 — Fifth Annual Chemical Sales Clinic, Hotel Commodore, New York, Sponsored by the Salesmen's Association of the American Chemical Industry.

Oct. 15 — Fifth Annual Chemical Sales Clinic, the Salesmen's Association of the American Chemical Industry; Hotel Commodore, New York City; chairman, Preston F. Tinsley, Westvaco Chlor-Alkali Division, Food Machinery and Chemical Corp., 161 East 42nd St., New York 17, N.Y.

Oct. 16-17—National Nitrogen Solutions Assn., Annual Meeting and Trade Show, City Auditorium, Sioux City, Iowa; John White, Auburn, Neb., secretary.

Nov. 1—Southern Regional Soil Research Committee, Annual Meeting, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 2 — Work Conference on Research Findings in Agriculture, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 11-13 — California Fertilizer Assn., 33rd annual convention, Del Coronado Hotel, Coronado, Cal.; Sidney H. Bierly, executive secretary, 475 Huntington Drive, San Marino 9, Cal.

Nov. 19-20 — Eastern Branch, Entomological Society of America, Hotel Haddon Hall, Atlantic City, N.J., B. F. Driggers, Rutgers University, New Brunswick, N.J., secretary.

Nov. 28—Oklahoma Fertilizer Dealers Conference, Sponsored by the Oklahoma Plant Food Educational Society, Oklahoma A&M College, Stillwater.

Nov. 29—Oklahoma Soils and Crops Conference, Oklahoma A&M College, Stillwater.

Dec. 27-31—Entomological Society of America, Annual Meeting, Hotel New Yorker, New York City.

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Canadian Farmers' Cash Income Dips

WINNIPEG — Canada's cash income from the sales of farm products and participation payments on previous years' grain crops in 1955 amounted to an estimated $2,352,600,000. According to the Bureau of Statistics this is 1.8% below the 1954 total of $2,395,300,000 and 17.4% under the all-time high of $2,849,300,000 in 1952.

In addition to cash income from the sale of farm products, supplementary payments made under the provisions of the Prairie Farm Assistance Act to farmers in western Canada amounted to $33,300,000 in 1955 compared with $2,400,000 in 1954 and $1,600,000 in 1952.

Farm cash income from the sale of wheat in 1955 amounted to $330,800,000 as compared with $322,000,000 the year previous. Higher marketings were offset to some extent by lower average prices. Wheat participation payments of $25,700,000 were well below the 1954 figure of $97,400,000.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Classified advertising rate not available for commercial advertising. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $9 per column inch.

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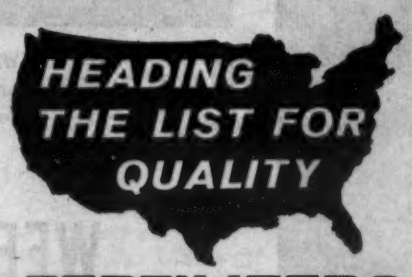
BARLEY DEMONSTRATIONS

ST. PAUL—Minnesota's first malting barley production demonstrations will be set up this summer by the University of Minnesota's Agricultural Extension Service and the soils department. The demonstrations will give farmers an opportunity to watch recommended practices of soil management, varietal selection, seeding techniques, insect and weed control and their effects on barley yields. Effects of several seeding rates at different dates and at different fertility levels will be determined. Plots of barley will be sown at one, one-and-a-half and two bushels to the acre early and late on fertilized and unfertilized areas.



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✓ Anhydrous Ammonia

✓ Nitrogen Solutions

✓ Ammonium Nitrate 33.5% N

✓ Triple Superphosphate 46% A.P.A.

✓ Muriate of Potash 60% K_2O

✓ Nitrolime 20.5% N

✓ Calcium Nitrate 15.5% N

✓ Nitrogenous Tankage 10/11% NH_3

BRADLEY & BAKER

155 EAST 44 STREET • NEW YORK 17, N. Y.

WEEVIL BREEDING GROUND—This photo of a Texas cotton field shows how snow helped protect the heavy weevil population which went into hibernation. Conditions in many cotton-growing areas were ideal for high survival of boll weevils and other cotton insect pests.

WEEVILS SLEPT HERE LAST WINTER; PROTECT YOUR CROP WITH TOXAPHENE

Ideal conditions for the overwintered boll weevil and a mixed population of other pests—coupled with new government regulations—make it more important than ever before to get the most from every acre planted to cotton this season.

Cotton growers have learned from last year's experience that early-season control of insects with toxaphene pays off in higher yields at picking time. Many farmers who used toxaphene regularly throughout the season obtained excellent weevil control—even in those sections of the cotton belt where infestations were extremely heavy. Some of these farmers reported the highest yields per acre in their experience.

This year every boll counts. Protect your crop all through the season with toxaphene, the insecticide you can depend on. See your dealer now. He can supply you now with the formulation recommended for your particular area.

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